

# Author Index, Agronomy Journal, Volume 62, 1970

- Abel, G. H. .... 118, 121  
 Adams, Fred ..... 9  
 Adams, John E. .... 785  
 Adams, M. W. .... 557  
 Adams, W. E. .... 39, 646, 655  
 Adriano, D. C. .... 561  
 Agathangelides, D. .... 682  
 Ajayi, O. .... 818  
 Aldag, R. W. .... 184  
 Alessi, J. .... 635  
 Allen, S. E. .... 390  
 Allinson, D. W. .... 246  
 Al-Mamun, Abdullah .... 189  
 Andersen, R. A. .... 415  
 Anderson, O. E. 206, 499, 778  
 Anderson, W. D. .... 299  
 Anthony, W. B. .... 115  
 Applegate, H. G. .... 509  
 Ashburn, C. L. .... 507  
 Ashkar, S. A. .... 746  
 Atkins, R. E. .... 83  
 Atkinson, W. O. .... 421  
 Atsmon, D. .... 303  
 Attoe, O. J. .... 828  
 Avelino, E. .... 269  
 Axley, J. H. .... 431  
 Axthelm, L. S. .... 507
- Baker, D. E. .... 103, 117  
 Baker, R. D. .... 509  
 Bakker, J. W. .... 689  
 Banks, Donald J. .... 503, 812  
 Barber, S. A. .... 550, 581, 585  
 Barker, A. V. .... 304, 818  
 Barnes, R. F. .... 348, 719  
 Bassett, D. M. .... 200, 299  
 Baur, J. R. .... 627  
 Beall, M. L., Jr. .... 365, 369  
 Beard, J. B. .... 257  
 Beaty, E. R. 101, 363, 403, 767  
 Benedict, C. R. .... 627  
 Beyer, L. E. .... 117  
 Bhatti, A. S. .... 288  
 Bingham, David E. .... 464  
 Bingham, F. T. .... 351  
 Birchett, J. R. .... 106  
 Black, A. L. .... 32, 797  
 Black, T. A. .... 48, 66  
 Blair, G. J. .... 524, 530  
 Bloodworth, M. E. .... 659  
 Blum, A. .... 333  
 Bolton, E. F. .... 220  
 Bondavalli, Bruno .... 669  
 Boswell, F. C. .... 206, 437, 499  
 Bovey, R. W. .... 627, 775  
 Bower, C. A. .... 793  
 Breckinridge, C. E., Jr. .... 731  
 Bremner, J. M. .... 805  
 Brigham, Raymond D. .... 684  
 Broadhead, Dempsey M. 831  
 Brown, A. R. .... 101  
 Brown, K. W. .... 4, 20  
 Brown, R. H. .... 767  
 Bryan, W. B. .... 75  
 Burns, J. C. .... 348, 453  
 Burns, R. E. .... 112, 633, 803, 835  
 Burnside, O. C. .... 252  
 Burrows, W. C. .... 424  
 Buxton, D. R. .... 93, 97, 741
- Cady, F. B. .... 599  
 Caldwell, B. E. .... 12, 621  
 Canode, C. L. .... 515  
 Carden, E. L. .... 115  
 Carmer, S. G. .... 357  
 Carter, M. T. .... 535  
 Cary, J. W. .... 715
- Cathey, G. W. .... 36  
 Caviness, C. E. .... 236  
 Chambliss, C. G. .... 294  
 Chaplin, J. F. .... 87, 415  
 Chatterton, N. J. .... 351  
 Chaudhary, T. N. .... 281  
 Ching, Te May .... 272  
 Christenson, D. R. .... 681  
 Christian, J. E. .... 731  
 Chu, Hilda .... 512  
 Claassen, M. M. .... 649, 652  
 Clapp, J. C., Jr. .... 802  
 Clark, N. A. .... 474  
 Clark, R. B. .... 432  
 Clark, R. C. .... 758  
 Clawson, W. J. .... 351  
 Collier, G. W. .... 341, 346  
 Colyer, Dale .... 487, 669  
 Conrad, B. E. .... 549, 572  
 Cornelius, D. R. .... 55, 353  
 Cox, F. R. .... 262  
 Creger, C. R. .... 297  
 Cressman, H. K. .... 832  
 Cummins, D. G. .... 633, 781  
 Cunningham, J. P. .... 115  
 Currin, R. E. .... 415
- Daigger, L. A. .... 507  
 Dasberg, S. .... 689  
 Davis, Ronald G. .... 837  
 Dawson, R. N. .... 646, 655  
 Day, A. D. .... 27, 729  
 De Datta, S. K. .... 468  
 deMooy, C. J. .... 195  
 Dedrick, A. R. .... 810  
 Dewey, W. G. .... 682  
 Dickens, W. L. .... 200  
 Doss, B. D. .... 541  
 Drew, J. V. .... 43, 46  
 Dudeck, A. E. .... 397, 810  
 Dumenit, L. C. .... 726  
 Dunavin, L. S. .... 375  
 Dunn, J. H. .... 517, 623  
 Durlu, Nazim .... 55
- Earley, E. B. .... 434  
 Edwards, C. J., Jr. .... 64  
 Edwards, T. A. .... 832  
 Egli, D. B. .... 411  
 El Gazzar, A. M. .... 373  
 Elkins, D. M. .... 485  
 Empig, L. T. .... 758  
 Engel, R. E. .... 517, 623  
 Engelstad, O. P. .... 390  
 Erickson, A. E. .... 220  
 Estes, G. O. .... 461  
 Ethredge, W. J. .... 767  
 Evanari, M. .... 445, 695  
 Evans, Raymond A. 638, 743
- Fairbourn, Merle L. .... 795  
 Faix, J. J. .... 485  
 Fattah, Q. A. .... 576  
 Fehr, W. R. .... 758  
 Fenster, C. R. .... 252  
 Floyd, E. H. .... 211  
 Ford, Z. T. .... 415  
 Fox, R. L. .... 69  
 Foy, Charles D. .... 679  
 Francis, C. A. .... 790  
 Franklin, R. E. .... 214  
 Fuller, W. A. .... 599, 736
- Gamble, E. E. .... 255  
 Gardner, H. R. .... 795  
 Gardner, W. R. .... 48, 66, 693, 705
- Geist, J. M. .... 381, 385  
 Genter, C. F. .... 535, 760  
 George, D. W. .... 113  
 Ghesling, R. H. .... 29  
 Gildyal, B. P. .... 281  
 Giddens, Joel .... 306, 403  
 Giordano, P. M. .... 612  
 Goering, H. K. .... 532  
 Goodin, J. R. .... 478, 481  
 Goodrich, R. D. .... 543  
 Gordon, C. H. .... 532  
 Gray, Elmer .... 394  
 Griffin, G. F. .... 336  
 Gritton, E. T. .... 61  
 Gross, H. D. .... 453  
 Grunes, D. L. .... 567
- Hackerott, H. L. .... 574  
 Haghir, F. .... 307  
 Hagin, R. D. .... 405  
 Hall, V. L. .... 239  
 Hanson, A. A. .... 25  
 Hanway, J. J. .... 116, 726, 736  
 Hardy, G. W. .... 236  
 Harris, D. G. .... 71  
 Harris, H. B. .... 633, 835  
 Harrison, R. M. .... 778  
 Hart, R. H. .... 285, 626  
 Hartwig, E. E. .... 64, 621  
 Harvey, G. L. .... 574  
 Hassan, N. A. K. .... 43, 46  
 Hawkins, B. S. .... 578  
 Hayes, D. D. .... 767  
 Hensler, R. F. .... 828  
 Higgins, J. J. .... 667  
 Hills, F. J. .... 91  
 Hipp, B. W. .... 203  
 Hodges, G. H. .... 265  
 Holmes, R. M. .... 546  
 Holt, E. C. .... 297, 494, 519  
 Horner, G. M. .... 449  
 Hoveland, C. S. .... 115  
 Hovin, A. W. .... 25  
 Huck, M. G. .... 807, 815  
 Hughes, R. H. .... 285  
 Hughes, T. D. .... 595, 821  
 Hunter, A. S. .... 702  
 Hunter, James E. .... 496  
 Hunter, R. B. .... 255  
 Hutchinson, F. E. .... 702  
 Hylton, L. O., Jr. .... 353  
 Hymowitz, T. .... 631
- Intalap, Subhawatr .... 27
- Jacobs, J. A. .... 294  
 Jackson, W. A. .... 39  
 Jacobs, E. .... 303  
 Jacobs, L. W. .... 588  
 James, N. I. .... 250  
 Jarrell, A. E. .... 103  
 Johnson, D. D. .... 385  
 Johnson, Wendell G. .... 837  
 Johnston, T. H. .... 608  
 Jones, G. D. .... 535, 760  
 Jones, H. J. .... 485  
 Jones, L. S. .... 206  
 Jones, M. B. .... 439  
 Jordan, Wayne R. .... 699  
 Juska, F. V. .... 25
- Kafkafi, U. .... 303  
 Kannenberg, L. W. .... 255  
 Kasperbauer, M. J. 421, 825  
 Kay, Burgess L. .... 638, 743  
 Keeney, D. R. .... 588  
 Kemper, W. D. .... 795
- Kern, J. J. .... 83  
 Kin, W. K. Look .... 442  
 King, C. C. .... 541  
 Kirithivip, Rasamee .... 120  
 Kittock, D. L. .... 527  
 Klepper, Betty .... 807  
 Kneebone, W. R. .... 673  
 Knight, W. E. .... 773  
 Knudsen, Delno .... 43, 46  
 Kohnke, Helmut .... 464  
 Kroth, Earl M. .... 487, 669
- Laksmanan, S. .... 532  
 Lang, A. R. G. .... 693, 705  
 Langille, Alan R. .... 552  
 Law, A. G. .... 291  
 Lawler, P. W. .... 439  
 Lawrence, R. M. .... 363  
 Letey, J. .... 317, 322, 325, 329, 505
- Lewis, C. E. .... 285  
 Linscott, D. L. .... 405  
 Loneragan, J. F. .... 288  
 Long, F. Leslie .... 679  
 Lorton, R. E. .... 336  
 Love, J. R. .... 313  
 Lovelace, D. A. .... 297  
 Lowance, S. A. .... 400  
 Loyd, R. C. .... 394  
 Lund, Z. F. .... 807  
 Luxmoore, R. J. .... 317, 322, 325, 329, 615, 830
- Mack, H. J. .... 461  
 MacKenzie, A. F. .... 442  
 Mamaril, C. P. .... 524, 753  
 Manning, Clarence .... 686  
 Maranville, Jerry W. .... 605  
 Marshall, J. G. .... 211  
 Marshall, L. E. .... 103  
 Marten, G. C. .... 543, 762  
 Martin, D. P. .... 257  
 Massee, T. W. .... 722  
 Mathers, Aubra C. .... 555  
 Matocha, J. E. .... 572  
 Maun, M. Anwar .... 515  
 Mayland, H. F. .... 715  
 Maynard, D. N. .... 304, 818  
 McBee, G. G. .... 192, 659  
 McDevitt, J. B. .... 211  
 McGinnies, W. J. .... 417  
 McIlvain, E. H. .... 673  
 McKee, G. W. .... 377, 433, 552, 711
- McKell, C. M. .... 351  
 Meggitt, W. F. .... 746  
 Meisinger, John .... 106  
 Menn, W. G. .... 192  
 Menser, H. A. .... 265  
 Mian, A. L. .... 189  
 Mielke, L. N. .... 810  
 Millar, A. A. .... 705  
 Miller, D. A. .... 294  
 Miller, Dwane G. .... 686  
 Miller, M. .... 269  
 Miller, M. H. .... 624, 530, 753  
 Millington, R. J. 451, 615, 830  
 Mitchell, W. A. .... 530  
 Mittra, B. N. .... 197  
 Mohamed, S. A. .... 18  
 Mojtehed, M. .... 449  
 Monson, W. G. .... 285  
 Moreno, O. .... 746  
 Morris, H. D. .... 655  
 Mortvedt, J. J. .... 612  
 Mott, G. O. .... 719  
 Mozafar, Ahmad .... 478, 481  
 Mueller, R. T. .... 373  
 Murphy, L. S. .... 277, 561

Nangju, D. ....	468	Rabas, D. L. ....	762	Sipitanos, K. M. ....	91	Vetter, R. L. ....	75
Nash, R. G. ....	365, 369	Radke, J. K. ....	424	Slife, F. W. ....	434	Voigt, P. W. ....	673
Nelson, L. A. ....	453	Rampton, H. H. ....	272	Small, H. G., Jr. ....	802	Voss, R. E. ....	726, 736
Nelson, Werner L. ....	1	Raper, C. D., Jr. ....	581, 585	Smika, D. E. ....	15		
Nicholaides, J. J. ....	262	Ratliff, L. F. ....	243	Smiley, R. W. ....	833	Walker, W. M. ....	631
Niehaus, Merle H. ....	677	Reeves, Sim A., Jr. ....	659	Smith, Dale ....	520, 764	Wallace, A. ....	373
Noller, C. H. ....	348	Reichman, G. R. ....	567	Smith, G. A. ....	250	Walsh, L. M. ....	588
Norum, E. B. ....	216	Rejcosky, D. C. ....	451	Smith, L. W. ....	532	Wanjura, D. F. ....	741
		Reiniger, P. ....	445	Sneva, F. A. ....	311	Ward, Coleman Y. ....	678
O'Donnell, J. L. ....	313	Reisenauer, H. M. ....	429	Snyder, H. W. ....	307	Watson, Vance H. ....	678
Oertli, J. J. ....	478, 481	Reuss, J. O. ....	381, 385	Sprague, Milton A. ....	749	Weber, D. F. ....	12
Ogus, G. ....	793	Reyes, L. ....	572	Stapleton, H. N. ....	741	Webster, J. E. ....	673
Ogus, Lufti ....	69	Rhykerd, C. L. ....	348	Stockton, J. R. ....	200	Wedin, W. F. ....	75, 93, 97, 348, 359
Ohlrogge, A. J. ....	731	Rich, H. ....	682	Stolzy, L. H. ....	317, 322, 325, 329, 505	Weibel, D. E. ....	407
Ohlsen, R. J. ....	828	Richards, G. E. ....	832	Stritzke, J. F. ....	259	Welch, L. F. ....	341, 346, 595, 821
Olson, R. A. ....	43, 46	Ries, S. K. ....	746	Swanson, N. P. ....	810	Wells, B. R. ....	608
Olson, T. C. ....	229	Riley, D. ....	550			Werkhoven, C. H. E. ....	299
Osmond, C. A. ....	432	Risius, M. L. ....	711	Tabatabai, M. A. ....	805	White, A. W. ....	437
		Robinson, R. G. ....	665, 770	Tadmor, N. H. ....	695	White, G. A. ....	667
Pallas, James E., Jr. ....	646	Rosenberg, N. J. ....	4, 20	Tamimi, Yusuf ....	496	White, R. P. ....	681
Pande, H. K. ....	197	Ruckman, J. E. ....	439	Tanner, C. B. ....	48, 66	Wicks, G. A. ....	252
Papendick, R. I. ....	833	Rumbaugh, M. D. ....	51	Taylor, B. Brooks ....	749	Wilkinson, S. R. ....	39
Parks, C. L. ....	437	Rumburg, C. B. ....	311	Taylor, H. M. ....	243, 807	Willett, N. F. ....	429
Patel, K. M. ....	644			Teare, I. D. ....	291, 515	Willey, C. R. ....	224
Patten, G. P. ....	592	Sabbe, W. E. ....	36	Terman, G. L. ....	390	Williams, J. H. ....	527
Patterson, R. M. ....	541	Sailsbery, R. L. ....	91	Thomas, G. W. ....	567	Williamson, R. E. ....	18, 80
Paulsen, G. M. ....	277, 605	Sant'Anna, Renato ....	731	Thomas, W. I. ....	103	Willis, D. L. ....	461
Peacock, H. A. ....	578	Santelmann, P. W. ....	407	Thompson, L. M. ....	232	Willis, W. O. ....	567
Pearson, R. W. ....	9, 243	Scarsbrook, C. E. ....	618	Thompson, R. K. ....	729	Wilson, V. E. ....	291
Peeper, T. F. ....	407	Schmid, A. R. ....	543, 762	Tipton, K. W. ....	211	Winter, S. R. ....	181
Pendleton, J. W. ....	181, 411	Schmidt, Walter H. ....	677	Tso, T. C. ....	512, 663	Woodhouse, W. W., Jr. ....	453, 458
Perkins, H. F. ....	29	Schneider, B. A. ....	474	Tucker, J. M. ....	793	Wooding, F. J. ....	277
Perrier, E. R. ....	615	Schoeberl, L. S. ....	229	Turner, Neil C. ....	538	Woolson, E. A. ....	369
Pesek, John ....	491	Schweizer, C. J. ....	746			Wort, D. J. ....	57, 576, 644
Peters, D. B. ....	411, 451, 615, 830	Scifres, C. J. ....	775			Wright, M. J. ....	405
Peters, E. J. ....	259, 400	Shahied, S. I. ....	306	Ueno, Masahiko ....	764		
Peters, R. A. ....	246	Shanan, L. ....	695	Ulrich, A. ....	91, 353	Yocum, J. O. ....	377, 433
Pierre, W. H. ....	106	Shannon, J. C. ....	123			Young, James A. ....	638, 743
Pitre, Henry N. ....	678	Shaw, R. H. ....	649, 652	Vanderlip, L. ....	491	Young, J. L. ....	184
Place, G. A. ....	239	Shoop, M. C. ....	673	Van Doren, D. M., Jr. ....	592	Young, J. O. ....	397
Polson, D. E. ....	557	Siddoway, F. H. ....	722	Varade, S. B. ....	505		
Powell, J. D. ....	363	Simmons, R. W. ....	431	Vasey, E. H. ....	216		
Power, J. F. ....	567, 635	Sims, J. L. ....	120, 239	Vergara, B. S. ....	269	Zubriski, J. C. ....	216
Pumphrey, F. V. ....	641	Singh, B. ....	57	Vernell, H. F. ....	304	Zuhke, T. A. ....	61
		Singh, H. G. ....	708				

# Subject Index, Agronomy Journal, Volume 62, 1970

Absorption of Na and K .....	481	Animal gains from selections of weeping lovegrass .....	673
Achievement Awards, ASA, 1969 .....	133	Annual Meeting, sixty-first, Detroit, Mich., November 9-14, 1969 .....	147
Acid soils and aluminum toxicity .....	679	Antiauxin in peanuts .....	812
Acid subsoils .....	702	Apical meristems of cotton and corn .....	306
Acid-detergent fiber and lignin of Coastal bermudagrass .....	39	Application frequencies of N for cool-season sward .....	453
Acidity, effect of, on cotton seedling root elongation .....	243	Application rate of dairy cattle manure, effect of, on yield and recovery of twelve plant nutrients by corn .....	828
Acidity, subsoil, response of cotton and peanuts to .....	9	Aqueous extraction of certain sugars of cotton leaves .....	36
<i>Ad libitum</i> intake of <i>Phalaris arundinacea</i> .....	719	<i>Arachis hypogaea</i> L., see Peanut .....	262
Adsorbed cations, effect of, on phosphorus absorption by plant species .....	214	Arsenic residue toxicity to vegetable crops grown on Plainfield sand .....	588
Advection at atmospheric boundary layer .....	546	Astringents in grain sorghum hybrids in Louisiana .....	211
Adventitious roots of spring wheat as influenced by N-P fertilization .....	32	Atmospheric evaporative demand of lowland rice .....	197
Adventitious roots of winter wheat .....	797	Atrazine, effect of, on prussic acid content and forage yield of sorghums .....	101
Aeration, effect of, on growth of <i>Nicotiana tabacum</i> L. ....	80	Atrazine, influence of, on sorghum .....	252
effect of, on <i>Vicia faba</i> L. ....	18	<i>Atriplex halimus</i> L. ....	478
effects of, on water uptake by tobacco roots .....	224	Aus rice culture .....	197
influence of, on growth and root porosity of wheat .....	505	Austrian winter field peas .....	503
Agronomic image, improving our — Presidential address ....	1	Authoradiographs of <sup>32</sup> P absorption .....	524
Agronomic research, the statistics-computer interface in ....	599	Auxin in burley tobacco .....	421
Air pollutants, effects of, on burley tobacco cultivars .....	265	Auxin in soybeans .....	434
Air porosity .....	689	Auxin in peanuts .....	812
Airborne techniques to measure atmospheric boundary layer ..	546	Bacterial wilt in flue-cured tobacco .....	87
Alfalfa, clonal competition experiment with .....	51	Bahigraass, effect of nitrogen and shading on yield and quality of, grown under young slash pines .....	285
consumptive use of water by, in western Nebraska .....	507	Balance system, automated precision, for measuring transpiration from individual plants .....	71
dalapon residues in, as affected by harvesting .....	405	Balanced nutritional condition .....	708
and dehydrating .....	93	Banded P, effect of, on clover-grass sward .....	458
establishment of, and subsequent yields .....	719	Barium chloride-gelatin procedure .....	805
evaluation of .....	259	Barley, fall-planted spring, dates and rates of seeding in irrigated areas .....	729
herbicides and nitrogen fertilizer for establishment of ....	520	influence of soil salinity on production of dry matter and uptake of nutrients in .....	43
yield and composition of .....	764	malting, influence of nitrogen and potassium fertilizers and dates of seeding on yield and quality of .....	216
Alfalfa cultivars, three, influence of temperature on seedlings growth and carbohydrate composition of .....	678	Barley as indicator of aluminum toxicity .....	679
cultivars for resistance to the alfalfa weevil in Mississippi, field evaluation of .....	538	Barley development and nutrition, effect of soil temperature on rate of .....	567
hay, speeding the drying of, with fusaric acid .....	294	Bean crop, snap, evapotranspiration from .....	66
plant part, selection of, for phosphorus analysis .....	678	growth, characterizing soil aeration under changing soil moisture conditions for .....	689
weevil, in Mississippi, field evaluation of alfalfa cultivars for resistance to the .....	407	plants, effects of triazines on, grown on natural and amended soils .....	373
A-line .....	708	Beans, snap, arsenic toxicity in .....	588
Alkaline calcareous soils, chlorosis of peas in .....	87	navy, differential response of, to zinc .....	557
Alkaloids in flue-cured tobacco .....	421	Bentgrass, influence of water temperature on submersion tolerance of .....	257
Alkaloids in tobacco .....	184	Bermudagrass, Coastal, chemical composition and in vitro digestibility of vertical layers of .....	39
Alpha-keto acids in soils .....	117	effect of nitrogen and shading on, grown under young slash pines .....	285
Aluminum, extractable, neutron activation analysis technique for the determination of .....	9	Tifgreen, effect of N, P, and K tissue levels and late fall fertilization on .....	659
response of cotton and peanuts to .....	702	Tifgreen, nutritional requirements for .....	192
Aluminum levels in two soils as related to lime treatment and growth of six crop species .....	702	Bermudagrass sod, Coastal, productivity of crimson and arrowleaf clovers grown in a .....	773
-pH relationship related to lime treatment .....	702	<i>Beta vulgaris</i> , see Beet, sugar .....	4
toxicity, plant varieties as indicators of, in the A <sub>2</sub> horizon of a Norfolk soil .....	679	Biological soil properties and corn yield .....	655
toxicity and lime treatment .....	400	Bird damage, resistance of grain sorghum hybrids to .....	211
<i>Ambrosia artemisiifolia</i> , see Ragweed .....	839	Bird resistance of sorghum varieties .....	633
American Society of Agronomy, members of the .....	833	Birdsfoot trefoil, establishment of .....	93
Ammonia, anhydrous applicator for field research .....	821	Birdsfoot trefoil, yield and composition of .....	520
2-chloro-6- (trichloromethyl) pyridine as a nitrification inhibitor for .....	341, 346	Black shank in flue-cured tobacco .....	87
toxicity of preplant, to germination and early growth of corn .....	832	Blade-petiole-stem magnesium, critical levels of, in cotton ..	29
Ammonia and yellow phosphorus solution .....	550	Bluegrass, influence of water temperature on submersion tolerance of .....	257
placement and rate for corn .....	341	Merion Kentucky, effects of time and height of cut on rooting activity of, as measured by radioactive phosphorus uptake .....	313
Ammonification of potassium azide .....	595	growth response of, to fertilizer and lime treatments ..	25
Ammonium, effects of, on the uptake of phosphorus, sulfur, and rubidium by corn .....	753		
Ammonium as a source of nitrogen for corn and influence on the uptake of other ions .....	530		
effects on phosphorus absorption through pH changes .....	524		
nutrition of tomato, effects of potassium on .....	818		
phosphates for paddy rice .....	390		
polyphosphates, effects of, on yield and chemical composition of irrigated corn .....	561		
toxicity to tomato .....	818		
Anaerobic conditions, effects of short periods of, on water uptake by tobacco roots .....	224		
Anaerobiosis, effect of, on toproot elongation .....	815		
Anemometers to measure turbulent flow .....	615		

Bluegrass pollen, viability of, as influenced by collection time and temperature .....	515	Chlorinated insecticides, plant uptake of, from soils .....	369
soil, rooting ability of, grown on mineral and muck soil ....	517	Chlorophyll concentration in corn .....	605
sods, root response of, to various nitrogen applications near the time of transplanting .....	623	Chloride, absorption of, by desert saltbush in relation to composition of nutrient solution culture .....	351
Border effect of grain sorghum of different height genotype .....	83	Chlorosis in peas, effect of sulphur in preventing the occurrence of .....	708
Boron, absorption of, by desert saltbush in relation to composition of nutrient solution culture .....	351	Chromic oxide evaluation of reed canarygrass and tall fescue .....	75
recovery of, by corn .....	828	Classification of small seeded legumes .....	686
Bromegrass, smooth, ( <i>Bromus inermis</i> ) establishment of .....	93	Clay content of cropped and fallowed soils .....	499
smooth, nitrate accumulation in. Effects of applied N, P, and K .....	491	Cleanup of <sup>14</sup> C-chlorinated insecticides from cotton grown in treated soils .....	365
<i>Bromus inermis</i> , nitrogen recovery from a soil profile by ....	69	Climatic factors, influence of, on the yield response by corn to N, P, and K fertilizer .....	736
Brown-seeded sorghum damage by birds .....	677	Clipping, intense, response of brunswickgrass to .....	363
Brown-seeded hybrids of sorghum .....	835	Clipping of smooth bromegrass .....	491
Brunswickgrass, response of, to N fertilization and intense clipping .....	363	Clonal competition experiment with alfalfa .....	51
Bulk density influenced by time .....	485	Clover, alsike, yield and composition of .....	520
Bulk populations, harvest of .....	758	arrowleaf, productivity of, grown in a Coastal bermudagrass sod .....	773
Buried seeds in soil, persistence of .....	272	crimson, productivity of, grown in a coastal bermudagrass sod .....	773
Bush beans, influence of dimethyl sulfoxide (DMSO) on nutrient uptake by .....	461	red, yield and composition of .....	520
CaCO <sub>3</sub> and CaSiO <sub>3</sub> fertilization, effect of, upon incidence corn smut .....	496	Clover responses, annual, difference in, to phosphorus and sulfur .....	439
Calcium, absorption of, by soybeans .....	585	Clover-orchardgrass sward, ladino, effect of placement of phosphorus and lime on the growth of .....	458
effect of, on chemical composition and early reproductive development of Virginia type peanuts .....	262	Collection time, viability of Kentucky bluegrass pollen as influenced by .....	515
recovery of, by corn .....	828	Competition among adjacent rows of grain sorghum of different height genotypes .....	83
Calcium deficiency and aluminum toxicity .....	679	by clovers in bermudagrass sod .....	773
strontium ratios in various commercially important plants .....	297	for water by sorghum .....	333
Canarygrass, establishment of .....	93	Components of grain yield .....	797
influence of simazine on crude protein, cellulose content and yield of .....	246	Components of yield of spring wheat as influenced by N-P fertilization .....	32
reed, evaluation of, as spring-summer and fall-saved pasture .....	75	Computer mapping of soybean canopy .....	830
Canopy resistance from a snap bean crop .....	66	Computer techniques in agronomic research .....	599
Canopy structure in soybeans .....	411	Constant and alternating humidities of soybean pollen for artificial crossing .....	121
Carbohydrate composition, influence of temperature on, of three alfalfa cultivars .....	764	Constant and alternating humidities of soybeans .....	453
composition of corn seedlings, alteration of, during moisture stress .....	605	Cool-season pasture, effect of N application on .....	432
content of corn .....	781	Corn, an improved method for growing mature effect of cysteine on the action of trifluralin on lateral roots of .....	306
levels of perennial forages .....	97	effect of mulches and bed configuration. Soil temperature and growth and yield responses of effect of seedbed preparations and green manure crops on production .....	403
Carbohydrates, water-soluble .....	348	effects of ammonium on the uptake of phosphorus sulfur, and rubidium by .....	753
Carbohydrates in crownvetch .....	552	effects of row spacing on evapotranspiration and yields of, in a semiarid environment .....	795
Carbon dioxide, effect of, on growth of <i>Nicotiana tabacum</i> L. ....	80	expected yields and returns for, due to nitrogen and plant population .....	487
Carbon dioxide levels, photosynthetic rate of soybean communities as related to .....	411	field studies .....	341
enriched atmosphere stimulates germination .....	638	influence of drying methods and temperatures on in vitro dry matter digestibility of .....	543
Carbon-14-labeled cell walls, fate of, in silage fermentation .....	532	influence of row width and plant population on yield of two varieties of .....	767
Castorbean yield, effects of plant population on .....	527	influence of soil, management, and climatic factors on the yield response by, to N, P, and K fertilizer .....	736
Cation-anion balance in crops as a factor in determining the effect of nitrogen fertilizers on soil acidity .....	106	influence of soil salinity on production of dry matter and uptake of nutrients in .....	43
Cell division of cotton and corn .....	306	internode lengths at different developmental stages of irrigated, effects of ammonium polyphosphates on yield and chemical composition of .....	561
Cell wall constituents of Coastal bermudagrass .....	39	nitrate and ammonium as sources of nitrogen for, and their influence on the uptake of other ions .....	530
Cell wall plasticity and toproot elongation .....	815	relationship between grain yield and leaf N, P, and K concentrations for, and the factors that influence this relationship .....	726
Cellulose, influence of simazine on, of forage grasses .....	2	silage, yield components and water use by, with irrigation, plastic mulch, nitrogen fertilization and plant spacing .....	541
Cellulose content of forage grasses, influence of simazine on .....	246	sweet, arsenic toxicity in .....	588
Cereal grains, effects of soil moisture stress on growth of ....	27	toxicity of preplant ammonia to .....	341, 346
Cereal plots, experimental, a combination belt, cone and vacuum seeder for .....	682	water deficit effects on .....	649
Chalky varieties of rice .....	468	water deficit effects on Grain components .....	652
Chemical and biological inactivation of chlorosis in peas composition, effects of ammonium polyphosphates on, of irrigated corn .....	708	uptake of nitrogen by .....	437
influence of temperature on, of five forage legume species .....	561		
relationship of, to palatability in sudangrass and sorghum X sudangrass hybrids .....	520		
sunflower date of, at various growth stages .....	762		
composition gains from selections of weeping lovegrass of clover crops .....	665		
of vertical layers of Coastal bermudagrass .....	673		
of Virginia type peanuts, effect of mineral nutrition on constituents, association among, in flue-cured tobacco .....	770		
weed control, effect of, on the prussic acid content and forage yield of sorghums .....	39		
	262		
	87		
	101		



- Corn Belt, western, corn yields, soil temperature, and water use in the ..... 229
- growth stages under water deficit ..... 649, 652
- hybrids, phosphorus uptake from soils by ..... 103
- plants, effects of triazines on, grown on natural and amended soils ..... 373
- plants and component parts, quality yield of, when harvested for silage at different maturity stages ..... 781
- production efficiency ..... 487
- roots, measure of, in a rhizotron ..... 807
- seedlings, alteration of carbohydrate composition of, during moisture stress ..... 605
- smut, effect of P, CaCO<sub>3</sub> and CaSiO<sub>3</sub> fertilization upon incidence of ..... 496
- yield, number of replications for precise estimation of optimum plant density and maximum ..... 357
- yield response, effect of weather, nitrogen and population on ..... 669
- yields, effect of cropping systems and nitrogen levels on, in the southern Piedmont region ..... 655
- yields with four tillage methods in the Western corn belt ..... 229
- Corn-rainfall relationship ..... 655
- Corn-sod systems, tillaged methods for, in the southern Piedmont ..... 646
- Coronilla varia* L., see Crownvetch
- Cotton, calcium and strontium relationships in ..... 297
- effect of cysteine on the action of trifluralin on lateral roots of ..... 306
- extraction and cleanup of <sup>14</sup>C-chlorinated insecticides from ..... 365
- irrigated, dry matter production and nutrient uptake in response of, to subsoil acidity ..... 9
- root growth of, as measured by P<sup>32</sup> uptake ..... 200
- upland, yield response of, to several spacing arrangements ..... 578
- water flux in ..... 693
- Cotton at different stages of growth, critical levels of manganese and magnesium in ..... 29
- emergence, a temperature model for predicting initial leaves, adaption of gas-liquid chromatography to analysis of certain sugars of ..... 36
- seedling root elongation, effect of soil temperature, strength, and pH on ..... 243
- seedlings, growth of, in relation to maximum daily plant-water potential ..... 699
- Cover crops, seedbed preparation for ..... 403
- Crop production, management of land diverted from, annual cover crops and fallow ..... 770
- residues and seedbed preparation ..... 403
- seeds, persistence of, in soil ..... 272
- uptake of N in cropped and fallowed soils ..... 499
- Cropping systems, effect of, on corn yields in the southern Piedmont region ..... 655
- Cross-bulk breeding in soybeans ..... 758
- Crownvetch, early growth of, under reduced light ..... 552
- establishment of ..... 93
- performance of, on roadside back-slopes as affected by slope exposure and nitrogen fertilization ..... 397
- Crownvetch cotyledon size, varietal differences in ..... 711
- seedling growth on an acid soil as influenced by soil preparation and lime placement ..... 485
- stems, frequency and severity of defoliation of, by grazing sheep ..... 626
- Crude fiber and protein in sorghum and sudangrass ..... 348
- Crude protein, effect of time and rate of N applications on, of bromegrass ..... 442
- Copper, recovery of ..... 828
- Cultivar interaction with soybean nodule bacteria ..... 621
- Cultivars of *Trifolium subterraneum* L., germination ..... 638
- germination of, in relation to metric potential ..... 743
- Cultural practices for fall-planted spring barley ..... 729
- Cultural practices for malting barley ..... 216
- Curing, effect of, on fatty acid composition of tobacco ..... 512
- Curly pubescence, effects of, on seed yield of soybeans ..... 64
- Cutting frequency for Yuchi arrowleaf clover ..... 115
- Cyanide in sorghum cultivars ..... 394
- Cycloalkanecarboxylic acids, response of plants to ..... 644
- Cynodon dactylon* L., see Bermudagrass
- Cynodon dactylon* × *C. transvaalensis* L., see Bermuda-grass, Tifgreen ..... 192
- Cysteine, effect of, on the action of trifluralin on lateral roots of cotton and corn ..... 306
- Dalapon residues in alfalfa as affected by harvesting and dehydrating ..... 405
- Dalligrass, effect of nitrogen and shading on, grown under young slash pines ..... 285
- D-amino acids in soils. I. Uptake and metabolism by seedling maize and ryegrass ..... 184
- Dates of planting of maize ..... 760
- Dates of seeding fall-planted spring barley in irrigated areas ..... 729
- DDT, extraction of, from cotton ..... 365
- DDT, uptake of, from soils ..... 369
- DDT in soils, effect of temperature and ultraviolet radiation on the persistence of ..... 509
- Deficiency symptoms for bermudagrass ..... 192
- Defoliation of clovers in bermudagrass sod ..... 773
- Degradation of dalapon residues ..... 405
- Dehydrating, dalapon residues in alfalfa as affected by ..... 405
- Dense pubescence, effects of, on seed yield of soybeans ..... 64
- Depletion in leaves, stems, and ears of maturing maize ..... 535
- Depth of rooting and phosphorus uptake from soils by corn hybrids ..... 103
- Desert, runoff farming in the ..... 445, 695
- Desiccation of soybean pollen for artificial crossing ..... 121
- Design of an anhydrous NH<sub>3</sub> applicator for field research ..... 833
- Desorption curve for moisture in sands ..... 464
- Determinate growth, effect of, on seed yield in soybeans ..... 64
- Development, effect of soil temperature on rate of barley ..... 567
- Development of grain sorghum, influence of dicamba on ..... 407
- Dicamba, influence of, on growth and development of grain sorghum ..... 407
- Dieldrin, extraction of, from cotton ..... 365
- Dieldrin, uptake, from soil ..... 369
- Differential growth at excessive Zn levels ..... 557
- Differential lime response by crops ..... 702
- Differential response of rice varieties to timing of mid-season nitrogen applications ..... 608
- Differential responses of sorghum varieties to picloram ..... 775
- Digestible dry matter of grazing-type sorghum cultivars as affected by harvest frequency ..... 359
- Digestibility evaluation of reed canarygrass and tall fescue of corn and sorghum fodder and silage ..... 75
- of vertical layers of Coastal bermudagrass ..... 543
- of Yuchi arrowleaf clover, management effects on ..... 39
- Dimethyl sulfoxide (DMSO), influence of, on nutrient uptake by potatoes and bush beans ..... 115
- Disease resistance, associations among, in flue-cured tobacco ..... 461
- Disease susceptibility affected by nutrients ..... 87
- Distillation of dalapon from alfalfa ..... 496
- Distribution of 2, 3, 5-triiodobenzoic acid (TIBA) in soybeans ..... 405
- Diurnal stomatal activity of sugar beets ..... 731
- Diurnal variation in growth of cotton ..... 4
- Drainage, effect of, on growth of *Nicotiana tabacum* L. effects of, on water uptake by tobacco roots ..... 699
- effects of, on water uptake by tobacco roots ..... 80
- Drainage under a row crop on a sandy soil ..... 224
- water, salinity of, under grasses ..... 48
- Drought, effects of, on carbohydrates in corn ..... 793
- Drought effect on value of P fertilizer ..... 605
- Drought-resistant vetch with subterranean and aerial seeds ..... 572
- Dry matter accumulation in leaves, stems, and ears of maturing maize ..... 55
- distribution, seasonal, of a cool-season sward as altered by frequency and rate of nitrogen application ..... 535
- production in irrigated cotton ..... 453
- yields of grazing-type sorghum cultivars as affected by harvest frequency ..... 299
- Dry weight of rice grain, effect of simazine on ..... 359
- Drying, speeding the, of alfalfa hay with fusicoccin ..... 269
- Drying methods, influence of, on in vitro dry matter digestibility of corn and sorghum fodder and silage ..... 538
- Drying methods for corn and sorghum fodder ..... 543
- Dryland winter wheat, summer fallow for, in semiarid Great Plains ..... 543
- Du Puits alfalfa, herbicides and nitrogen fertilizer for the establishment of ..... 15
- Duration of growth ..... 259
- Dust collector, inexpensive seed cleaner with ..... 333
- Early bloom stage of alfalfa plant ..... 307
- Early reproductive development of peanuts, effect of mineral nutrition on ..... 294
- Early reproductive development of peanuts, effect of mineral nutrition on ..... 262

Ears, dry matter accumulation and depletion in, of		Flax, dryland, influence of row spacing, irrigation, and	
maturing maize	535	weeds on yield, quality, and water use	635
Economic optima for corn yield	669	Flexibility in sugarcane, factors affecting	250
Educational exercise in legume identification	686	Flooding, effect of, on growth of <i>Nicotiana tabacum</i> L.	80
Effective day lengths for the study of photoperiod sensitive		Flooding of tomato plants	220
reactions in plants	790	Foliar absorption of 2, 3, 5-triiodobenzoic acid (TIBA)	
Efficiency of nitrogen recovery by grasses	618	in soybeans	731
Electron microprobe to determine P absorption by roots	524	Foliar applications of 2,4-D, influence of, on burley	
Elemental composition of sunflower	665	tobacco yield and composition	421
Elemental composition at excessive Zn levels	557	Forage composition of orchardgrass silage as affected	
Emergence of corn, effect of seed orientation on	592	by maturity and nitrogen fertilization	749
Endrin, extraction of, from cotton	365	production of Yuchi arrowleaf clover, management	
Endrin, uptake of, from soil	369	effects on	115
English sparrow damage to grain sorghum hybrids	211	quality of weeping lovegrass	673
Environment of tomato plants during soil flooding	220	sorghum, yield of	549
Environment-plant development interactions	760	Forages, perennial, establishment of, I. yields	93
Enzymes in corn, hydrolysis of sugars by	605	4-amino-3,5,6-trichloropicolinic acid, see Picloram	627
Enzymes of sugar beet	57	Freeze-drying of corn and sorghum	543
Establishment of crested wheatgrass, effects of seeding		Freezing, factors influencing, of supercooled water in	
rate and row spacing on	417	tender plants	715
Ethanol concentration in tomato plants during soil flooding	220	Freezing temperatures of plants	715
Ethrel, effect of, on growth and yield of soybeans	434	Frequency of defoliation of crownvetch stems by grazing	
Ethylene, effect of, on soybeans	434	sheep	626
Evaporation and soil-water storage under a row crop		Fruit stems, phytotoxicity of water extracts of	431
on a sandy soil	48	Fungal toxin in alfalfa hay	538
Evaporation from a snap bean crop	66	Fusarium wilt in flue-cured tobacco	87
Evapotranspiration, effects of row spacing on, of corn		Fusicoccin, speeding the drying of alfalfa hay with	538
in a semiarid environment	795		
Evapotranspiration from a snap bean crop	66	G.L.C.-herbicide	778
Evapotranspiration ratio of alfalfa	507	Gas chromatography, adaption of, to analysis of certain	
Excess carbon dioxide, effect of, on <i>Vicia faba</i> L.	18	sugars of cotton leaves	36
Exchangeable Al, effect of, on clover-grass sward	458	Gas composition, interaction of, upon root cell division	
Excised roots, effect of absorbed cations on phosphorus		of <i>Vicia faba</i>	18
absorption by	214	Gas-liquid chromatography, adaption of, to analysis of	
Excised root segments, oxygen diffusion in	322	certain sugars of cotton leaves	36
Executive Committee Meetings	135, 140, 146	Generation advance in soybeans	758
Experimental designs, precision of different, in pea		Genetic clonal competition experiment with alfalfa	51
yield trials	61	Genetic lines of soybeans, response of, to levels of soil	
Exponential regression for optimum plant density		fertility	236
and corn yield	357	Germination of corn, toxicity of preplant anhydrous	
Extractable phosphorus		ammonia to	341, 346
Extraction of <sup>14</sup> C-chlorinated insecticides from cotton		of cultivars of <i>Trifolium subterraneum</i> L.	638
grown in treated soils	365	of stored sugarcane cuttings	831
		of winter wheat on dryland farming	722
F ratios, selection of an alfalfa plant part for	294	Giant cells of nematode-infected plants	812
Fatty acid composition of tobacco, effect of growth,		Gibberellic acid seed treatment, response of <i>Pisum sativum</i>	
senescence, and curing on	512	L., to	291
Fe, recovery of, by corn	828	Glabrousness, effects of, on seed yield in soybeans	64
Fecal N evaluation of reed canarygrass and tall fescue	75	<i>Glycine max</i> L. Merr., see Soybeans	
Fellows of the American Society of Agronomy elected in 1969	124	effects of, on seed yield in soybeans	64
Fermentation substrates in grass silage	532	response of, to different levels of soil fertility	236
Ferrous sulfate, effect of, on grain sorghum yields	555	<i>Gossypium hirsutum</i> L., see also Cotton	578
Fertility management, response of lowland rice to varying		<i>Gossypium hirsutum</i> , root growth of, as measured by	
levels of	197	P <sup>32</sup> uptake	200
Fertilization, influence of, on crop yield	549	Gradation index for athletic turf	464
late fall, effect of, on the cold hardiness of tifgreen		Grain and chaff separator	307
bermudagrass	659	Grain breakage in transplanted rice, effect of time of	
Fertilization and corn plant population	487	harvest and nitrogen level on	468
Fertilization and corn yield	669	components, water deficit effects on corn	652
Fertilizer, response of bromegrass to	442	legumes, yield of, as affected by irrigation and fertilizer	
Fertilizer carriers, growth response of Merion Kentucky		regimes	449
bluegrass to	25	sorghum, bird resistant, evaluation of, in Ohio	677
concentration and uptake by corn	753	sorghum of different height genotypes, competition	
regimes, yield of grain legumes as affected by	449	among adjacent rows of	83
solution of yellow phosphorus-ammonia	832	weight of rice varieties	608
treatments, growth response of Merion Kentucky		yield components	333
bluegrass to	25	yield concentrations for corn, relationship between,	
Fescue, red, influence of water temperature on submersion		and the factors the influence this relationship	726
tolerance of	257	yield of rice, effects of nitrogen and phosphorus	
Fescue, tall, ( <i>Festuca arundinacea</i> ), evaluation of, as		fertilization on	239
spring-summer and fall-saved pasture	75	yield of wheat after clipping and grazing	641
<i>Festuca arundinacea</i> , yield and quality of vertical layers of	803	yields, summer fallow for dryland winter wheat and	15
Fiber content of legumes	520	yields of spring wheat as influenced by N-P fertilization	32
Fiber percentage, in sugarcane, factors affecting	250	Grain-stover ratio of corn	767
Fibrovascular bundle distribution in sugarcane, factors		<i>Gramineae</i> for cover crops	770
affecting	250	Gramoxone as substitute for tillage in production of rice	189
Field crops, prediction of the nitrogen requirements of	381	Grass, regression of nitrogen uptake on nitrogen added	
Field history of crop seeds in soil	272	from four sources applied to	618
Field plots, in-the-furrow application of root-knot larvae in	503	Grass establishment, mulches for, on fill slopes	810
Fill slopes, mulches for grass establishment on	810	Grass silage fermentation	532

- Grasses, influence of water temperature on submersion tolerance of ..... 257
- performance of, on roadside backslopes as affected by slope exposure and nitrogen fertilization ..... 397
- sudan, growth of, as influenced by irrigation water salinity and leaching fraction ..... 793
- tall fescue, growth of, as influenced by irrigation water salinity and leaching fraction ..... 793
- Grazing persistence of vetch with subterranean and aerial seeds ..... 55
- Grazing type sorghums ..... 359
- Green chop, effect of, on the prussic acid content and forage yield of sorghums ..... 101
- Green manure, effect of, on corn yields ..... 655
- Green manure crops, effect of, on corn production ..... 403
- Greenburg, resistance to, in three millet species ..... 574
- Growing season effects and interactions on growth and yield of maize ..... 760
- Growth, effect of, on fatty acid composition of tobacco ..... 512
- effect of ethrel on, of soybeans ..... 434
- effect of seed orientation, of corn ..... 592
- Growth components of kenaf in Maryland, effects of plant population and harvest date on ..... 667
- duration, effect of, on grain sorghum yield under limited water supply ..... 333
- levels, effect of picloram on, in herbaceous plants ..... 627
- of cereal rye, accumulation and loss of nitrogen during ..... 311
- of rice plant, influence of submerged soil temperature regimes on ..... 281
- regulator ..... 731
- response of merion Kentucky bluegrass to fertilizer and lime treatments ..... 25
- stage and nitrate accumulation ..... 491
- Guar, effect of fertilization on yield of ..... 549
- HCN, see Hydrocyanic acid
- Harvest date, effects of, on stem yield and growth components of kenaf in Maryland ..... 667
- Harvest frequency, digestible dry matter, crude protein and dry matter yields of grazing-type sorghum cultivars as affected by ..... 359
- Harvesting, dalapon residues in alfalfa as affected by ..... 405
- Harvesting equipment ..... 758
- Head size of sunflower as an indicator of plot yields ..... 112
- Heading date of rice ..... 468
- Height of cut, effects of, on rooting activity of Merion Kentucky bluegrass ..... 313
- Height of cut of tall fescue sward ..... 803
- Helianthus annuus* L., see Sunflower
- Hemicellulose in silage ..... 532
- Heptachlor ..... 365, 369
- Herbage-overstory relationships ..... 285
- Herbicide, response of sorghum to ..... 775
- Herbicide and wheat yield ..... 746
- injury to sorghum ..... 407
- performance in sorghum, influence of soil incorporation on ..... 252
- residues in alfalfa ..... 405
- Herbicides, quantitation of ..... 778
- Herbicides for control of ragweeds in Korean lespedeza ..... 400
- Herbicides for establishment of spring-sown alfalfa ..... 259
- Heterocompetition experiment with alfalfa ..... 51
- Hibiscus cannabinus* L., see Kenaf ..... 667
- High temperature response of *Pisum sativum* L. .... 291
- Highway embankments stabilized ..... 485
- Hill spacing and yield of cotton ..... 578
- Homocompetition experiment with alfalfa ..... 51
- Hordeum vulgare* L., see Barley ..... 43
- Humidity, effect of, on pollen viability ..... 515
- Hybrid sorghum ..... 333
- Hydraulic conductivity and germination of clover ..... 743
- Hydrocyanic acid, effect of, on the prussic acid content and forage yield of sorghums ..... 101
- Hydrocyanic acid and palatability in sudangrass ..... 762
- Hydrocyanic acid potential, amount and distribution of, during the life cycle of sorghum cultivars ..... 394
- Hydrogen cyanide, distribution of, in sorghum cultivars ..... 394
- Hydrolyzable carbohydrate in orchardgrass silage ..... 749
- Hydroponics for greenhouse plant nutrition research ..... 304
- Hydroponics study of nutritional requirements for bermudagrass ..... 192
- Hypera postica* (Gyllenhal), alfalfa weevil, resistance to ..... 678
- Hypertrophy in peanuts ..... 812
- Hypocotyl elongation rates in cotton ..... 741
- IAA ..... 812
- Illumination, influence of, on stomatal resistance of sugar beet leaves ..... 20
- Impedance to cotton seedling root elongation ..... 243
- Improving our agronomic image—Presidential address ..... 1
- Inclined plates for study of germination ..... 638
- Incubation temperature for *Trifolium subterraneum* ..... 638
- Indeterminate growth effect of, on seed yield in soybeans ..... 64
- Index point, for cam-actuated temperature programmers ..... 113
- Indigenous soil properties and yield of corn ..... 736
- Inoculation of soybean nodules as affected by planting dates ..... 12
- Insecticides in soils, persistence of ..... 509
- Interactions of climatic factors on corn ..... 736
- Interconversion of fatty acids in tobacco ..... 512
- Internode elongation in rice varieties ..... 608
- Internode lengths at different developmental stages of corn ..... 116
- Interspecies competition of perennial forages ..... 97
- Ion competition in *Atriplex halimus* ..... 481
- Ion uptake, response of cotton and peanuts to ..... 9
- Ionic balance in corn plants ..... 530
- Iron sulfate, effect of, on sorghum yield ..... 555
- Irrigation, effects of, on growth of wheat ..... 27
- influence of, on dryland flax yield, quality, and water use yield components and water use by silage corn with ..... 541
- yield of grain legumes as affected by ..... 449
- Irrigation to remove radioactive nutrients ..... 663
- Irrigation water salinity, growth of sudan and tall fescue grasses as influenced by ..... 793
- Jaw-action soil crusher ..... 429
- Johnson-Nishita method for total sulfur ..... 805
- Juvenile growth of bean plants ..... 576
- Juvenile growth stimulated by naphthenic acid ..... 644
- K, see Potassium ..... 828
- K interactions in increasing the salt tolerance of *Atriplex halimus* L. .... 478, 481
- Kenaf in Maryland, effects of plant population and harvest date on stem yield and growth components of ..... 667
- Kinetics of ion competition ..... 481
- Laboratory studies of corn ..... 346
- Latitude effects on photosensitive plants ..... 790
- Leaching, limited removal of  $Po^{210}$  and  $Pb^{210}$  from soil by ..... 663
- Leaching fraction, growth of sudan and tall fescue grasses as influenced by ..... 793
- Leaching of N in cropped and fallowed soils ..... 499
- Leaf age, influence of, on stomatal resistance of sugar beet leaves ..... 20
- analysis as a selection index for soybean seed oil and protein ..... 631
- area index of five maize hybrids ..... 255
- area index of sudangrass ..... 494
- area of type 41, Pennsylvania broadleaf, tobacco as affected by variety and plant population ..... 377
- expansion of cotton seedlings ..... 699
- N, P, and K concentration for corn, relationship between, and the factors that influence this relationship ..... 726
- Leaves, alfalfa, carbohydrates in ..... 764
- Leaves of maturing maize, dry matter accumulation and depletion in ..... 535
- Legume, clonal competition in a ..... 51
- Legume hemoglobin, response of, to sulfur nutrition ..... 277
- identification in laboratory exercise ..... 686
- response to molybdenum in Iowa ..... 195
- Legumes, small seeded, key to, for use in a student laboratory exercise ..... 686
- Leguminosae* as cover crops ..... 770
- Lespedeza, Korean, herbicides for control of ragweeds in ..... 400
- Light, effect of, on stimulation of vegetative and reproductive growth of bean plants by naphthenates ..... 576
- results of changing, photosynthesis of individual leaves ..... 181
- Light intensity, influence of, on growth and root porosity of wheat ..... 505



Light interception in tobacco .....	377	Mineral content of legumes .....	520
Lime, effect of placement of, on growth of a ladino clover-orchardgrass sward .....	458	constituents, effect of potassium on, of pearl millet and sudangrass .....	474
Lime placement, crownvetch seedling growth on an acid soil as influenced by .....	485	nutrition, effect of, on chemical composition and early reproductive development of peanuts .....	262
Lime treatment and growth of six crop species, exchange- able aluminum levels in two soils as related to .....	702	response of soybean seedlings to .....	277
Lime treatments, growth response of Merion Kentucky bluegrass to .....	25	nutrition of irrigated cotton .....	299
Lignin in weeping lovegrass .....	673	Minerals in <i>Phalaris arundinacea</i> .....	719
Lipids in tobacco .....	512	Minimum tillage in the western Corn Belt .....	229
Liquid fire test for phosphorus .....	294	Mist system for inoculation with root knot larvae .....	503
Lodging of rice .....	468, 608	Model of oxygen diffusion in soil-plant system .....	317
Losses from orchardgrass silage as affected by maturity and nitrogen fertilization .....	749	Moisture stress effects on corn .....	649, 652
Lovegrass, weeping, palatability, chemical composition, and animal gains from selections of .....	673	Moisture tension in sands under turf .....	464
<i>Lycopersicon esculentum</i> , see Tomato .....	818	Molybdenum, recovery of, by corn .....	828
phosphorus requirements for, as influenced by placement .....	203	Molybdenum response of soybeans in Iowa .....	195
Lyophilization of corn and sorghum .....	543	Moravian barley .....	385
Lysimeter, use of, to study irrigation water salinity .....	793	Morphological characteristics, effects of, upon seed yield in soybeans .....	64
Magnesium, absorption of, by soybeans .....	585	relationship of, to palatability in sudangrass and sorghum X sudangrass hybrids .....	762
Magnesium, effect of, on chemical composition and early reproductive development of Virginia type peanuts .....	262	development of rice varieties .....	608
Magnesium in cotton, critical levels of, at different stages of growth .....	29	Morphology as key to legume identification .....	686
Maize, also see Corn and <i>Zea mays</i> growth of, stimulated by naphthenic acid .....	644	Mulch, plastic, yield of corn with .....	541
maturing, dry matter accumulation and depletion in leaves, stems, and ears of .....	535	Mulches and bed configuration, effect of. Soil temperature and growth and yield responses of grain sorghum and corn .....	785
planting date and growth season effects and interactions on growth and yield of .....	760	Mulches for grass establishment on fill slopes .....	810
seedling uptake and metabolism of D-amino acids by .....	184	Multiple regression of nitrogen requirements of field crops .....	381
Maize hybrids, performance of, in varying plant populations and row widths .....	255	Multiple-regression model of climatic factors and corn yield .....	736
root model .....	325	Multiple-stirring apparatus, an inexpensive .....	123
roots, oxygen concentration profiles, respiration rates, and significance of plant aeration predicted for .....	325	NH <sub>4</sub> :K ratio .....	818
roots, respiration rate, permeability, and porosity of excised segments of .....	322	NH <sub>4</sub> retention zone .....	821
Maleic hydrazide, metabolic responses of sugar beet to application of .....	57	N-P fertilization, adventitious roots, tillers, and grain yields of spring wheat as influenced by .....	32
responses of nematode infected peanut plants to .....	812	Na, absorption of, by desert saltbush in relation to composition of nutrient solution culture .....	351
Malting barley, application of theoretical models to .....	385	Na interactions in increasing the salt tolerance of <i>Atriplex halimus</i> L. ....	478, 481
Malting quality of barley .....	216	NaHCO <sub>3</sub> -extractable phosphorus in calcareous soil .....	572
Management factors, influence of, on the yield response by corn to N, P, and K fertilizer .....	736	Naphthenates, stimulation of plants by .....	576
Management of land diverted from crop production .....	770	Naphthenic acids, response of plants to .....	644
Manganese, critical levels of, in cotton at different stages of growth .....	29	Narrow leaf, effects of, on seed yield of soybeans .....	64
Matrix potential, germination of cultivars of <i>Trifolium</i> subterraneum L. in relation to .....	743	Net radiation in a soybean canopy .....	830
Maturation of rye, accumulation and loss of nitrogen during .....	311	Neutron activation analysis technique for the determination of extractable aluminum .....	117
Maturity, forage composition and losses from orchard- grass silage as affected by .....	749	<i>Nicotiana tabacum</i> L., also see Tobacco .....	825
Maturity-group bulk in soybean breeding .....	758	association among disease resistance, agronomic characteristics, and chemical constituents in .....	87
Maturity groups of soybeans .....	631	effect of soil gas composition and flooding on growth of .....	80
<i>Medicago sativa</i> L., also see Alfalfa .....	51	effects of air pollutants on .....	265
damage by weevils .....	678	Nitrate as a source of nitrogen for corn and their influence on the uptake of other ions .....	530
herbicides and nitrogen fertilizer for the establishment of .....	259	content, effect of time and rate of N applications on, of bromegrass .....	442
selection of, for phosphorus analysis .....	294	in soybean seedlings .....	550
<i>Medicago</i> species response to P and S .....	439	in sugar beet, effect of phosphorus on .....	91
Meso-scale effects of agriculture and a large prairie lake on the atmospheric boundary layer .....	546	leaching .....	437
Metabolic responses of sugar beet to application of maleic hydrazide .....	57	Nitrate-N concentration .....	353
Metabolism by seedling maize and ryegrass .....	184	Nitrate-N of pearl millet and sudangrass .....	474
Metal chelates and effects of triazines on corn .....	373	Nitrates of forage grasses .....	246
Methyl parathion in soils, effect of temperature and ultraviolet radiation on the persistence of .....	509	Nitric-perchloric acid digestion .....	805
Microclimate factors and freezing of water in plants .....	715	Nitrification and early growth of corn .....	341
Micronutrient unbalance in navy beans .....	557	in sodded and cultivated soils .....	206
Micronutrients, soybean response to, in Iowa .....	195	in soybean seedlings .....	550
Micronutrients in corn and beans .....	373	inhibitor, potassium azide as a .....	595
Microwatershed systems in a semiarid environment .....	795	2-chloro-6-(trichloromethyl) pyridine as a, for anhydrous ammonia applied in different seasons .....	821
Millet species, resistance to greenbug in .....	574	Nitrate in soybean seedlings .....	550
Milling quality of rice .....	468	Nitrogen, accumulation of, during growth and maturation of cereal rye .....	311
Milling yield of rice varieties .....	608	effect of, on chemical composition and development of peanuts .....	262
		effect of, on corn yield response .....	669
		effect of, on yield and quality of grasses grown under young slash pines .....	285
		effects of, on growth, yield and cooking characteristics of rice .....	239
		expected yields and returns for corn due to .....	487
		influence of, on rice culm elongation near midseason .....	120



- influence of, on yield and quality of malting barley ..... 216
- nitrate and ammonium as source of, for corn and their  
influence on the uptake of other ions ..... 530
- regression of nitrogen uptake on, added from four  
sources applied to grass ..... 618
- release of, from sulfur-coated urea in flooded soil ..... 612
- source of, in relation to nitrification in sodded and  
cultivated soils ..... 206
- various applications near the time of transplanting, root  
response of merion Kentucky bluegrass sods to ..... 623
- Nitrogen accumulation in cropped and fallowed soils ..... 499
- accumulation in smooth brome grass effects of applied  
N, P, and K ..... 491
- application, seasonal dry matter distribution and annual  
yields of a cool-season sward as altered by frequency  
and rate of ..... 453
- applications, mid-season, differential response of rice  
varieties to timing of ..... 608
- assimilation in tomato ..... 818
- availability to barley ..... 385
- content of dryland winter wheat ..... 15
- constituents, response of, to sulfur nutrition ..... 277
- deficiency symptoms ..... 353
- effect on wheat seed protein ..... 746
- efficiency in different seasons ..... 821
- fertilization, forage composition and losses from  
orchardgrass silage as affected by ..... 749
- influence of, on rice culm elongation near midseason ..... 120
- performance of crownvetch on roadside back slopes  
as affected by ..... 397
- response of brunswickgrass to ..... 363
- yield components and water use by silage corn ..... 541
- fertilization of tobacco ..... 415
- fertilizer for establishment of spring-sown alfalfa ..... 259
- fertilizer requirements of field crops, prediction of ..... 385
- fertilizers, cation-anion balance in crops as a factor  
in determining the effect of, on soil acidity ..... 106
- fixation, response of, to sulfur nutrition of soybeans ..... 277
- fixation in soybean nodules as affected by planting dates ..... 12
- fractions in wheatgrasses ..... 353
- level, effect of, on yield and grain breakage in  
transplanted rice ..... 468
- levels, effect of, on corn yields in the southern  
Piedmont regions ..... 655
- loss from a soil profile by *Bromus inermis* ..... 69
- movement comparisons in cropped versus fallowed soils ..... 499
- nutrition of tall and intermediate wheatgrasses ..... 353
- P, and K fertilizer, influence of soil, management, and  
climatic factors on the yield response by corn to ..... 736
- P, and K tissue levels, effect of, on the cold hardiness  
of tifgreen bermudagrass ..... 659
- Nitrogen rate and toxicity to corn ..... 346
- recovery from a soil profile by *Bromus inermis* ..... 69
- recovery in relation to nitrification in sodded and  
cultivated soils ..... 206
- release, theoretical models of ..... 381
- requirements of field crops, prediction of the ..... 381
- source, effect of, on rice grain ..... 269
- uptake, regression of, on nitrogen added from four  
sources applied to grass ..... 618
- uptake by plants, effect of a plastic barrier under the  
nitrate band on ..... 437
- uptake of rice grain ..... 269
- Nodulation in soybeans as affected by planting dates ..... 12
- Non-linear regression of number of replications ..... 357
- Nonstructural carbohydrates of legumes ..... 520
- Normal turbulent flow in soybean canopy ..... 615
- Numbers of replications, precision of different, in pea  
yield trials ..... 61
- Nursery planter for cereal plots ..... 682
- Nutrient composition of rice plant, influence of submerged  
soil temperature regimes on ..... 281
- interaction in smooth brome grass ..... 491
- solution absorption by large individual plants ..... 71
- solution concentrations, effect of, on chemical composition  
and early reproductive development of Virginia type  
peanuts ..... 262
- solutions for growing corn ..... 432
- translocation in maize ..... 535
- uptake, influence of dimethyl sulfoxide (DMSO) on,  
by potatoes and bush beans ..... 461
- uptake by soybean seedlings ..... 550
- uptake in irrigated cotton ..... 299
- Nutrient uptake of rice plant, influence of submerged  
soil temperature regimes on ..... 281
- Nutriculture for greenhouse plant nutrition research ..... 304
- Nutrition, a study of, for Tifgreen bermudagrass ..... 192
- effect of soil temperature on rate of barley ..... 567
- influence of nitrogen on rice culm elongation near  
midseason ..... 120
- Nutritional requirements for Tifgreen bermudagrass ..... 192
- Nutritive value index, effect of time and rate of N  
applications on, of brome grass ..... 442
- Oasis effects on atmospheric boundary layer ..... 546
- Officers and committees, 1970 ..... 173
- Oil content of castor ..... 527
- Orchardgrass, establishment of ..... 93
- Orchardgrass silage, forage composition and losses from,  
as affected by maturity and nitrogen fertilization ..... 749
- Organic acids in fermented silage ..... 532
- Orthophosphates, effect of, on corn yield ..... 561
- Oryza sativa* L., see Rice ..... 608
- effects of nitrogen and phosphorus fertilization on  
growth, yield, and cooking characteristics of ..... 239
- Osmotic inhibitions and salt tolerance ..... 478
- Osmotic potential and germination of clover ..... 743
- Osmotic potential and salt tolerance ..... 481
- Oven-drying of corn and sorghum fodder ..... 543
- Oxidants, effects of, on burley tobacco cultivars ..... 265
- Oxygen, effect of, on growth of wheat ..... 505
- Oxygen concentration of soil air ..... 689
- profiles in soil-plant systems ..... 325, 329
- profiles predicted for maize roots ..... 325
- profiles predicted for rice roots ..... 329
- deficiency, effect of, on growth of *Nicotiana tabacum* L. .... 80
- deficiency, effect of, on *Vicia faba* L. .... 18
- diffusion in the soil-plant system ..... 317, 322, 325, 329
- in soil and taproot elongation ..... 815
- losses, radial, predicted for rice roots ..... 329
- Ozone, effects of, on burley tobacco cultivars ..... 265
- Palatability of *Phalaris arundinacea* ..... 719
- Palatability gains from selections of weeping lovegrass ..... 673
- Paspalum nicorae* (Parodi) see Brunswickgrass ..... 363
- Pasture, yield of layers of tall fescue ..... 803
- Gahi-1 pearl millet and sorghum X sudangrass  
hybrids as ..... 375
- spring-summer and fall-saved, evaluation of ..... 75
- Pb<sup>20</sup>, limited removal of, from soil and fertilizer by leaching ..... 663
- Pea yield trials, precision of different experimental  
designs and numbers of replications in ..... 61
- Peas, effect of sulfur in preventing the occurrence of  
chlorosis in ..... 708
- Peanut plants, nematode infected, responses of, to maleic  
hydrazide ..... 812
- Peanuts, inoculation of with root knot larvae ..... 503
- response of, to subsoil acidity ..... 9
- Virginia type, effect of mineral nutrition on chemical  
composition and early reproductive development of .. 262
- Pearl millet, effect of potassium on the mineral  
constituents of ..... 474
- Pearl millet, Gahi-1, as pasture for yearling beef cattle ..... 375
- Peas, arsenic toxicity in ..... 588
- Pennbel 69 tobacco, yield of ..... 377, 433
- Pennleaf 1 tobacco, yield of ..... 433
- Perennial sods and corn yields ..... 655
- Pericycle of cotton and corn ..... 306
- Permeability of excised segments of maize and rice roots ..... 322
- Perennial ryegrass, influence of simazine on yield of ..... 246
- Pesticide residue toxicity ..... 588
- Petroleum mulch and responses of corn and sorghum ..... 785
- pH, effect of, on cotton seedling root elongation ..... 243
- pH, effect of, on growth of corn ..... 346
- Phalaris arundinacea* L., see Canarygrass, reed  
evaluation of, as spring-summer and fall-saved pasture  
evaluation of selected clones of. In vivo digestibility  
and intake ..... 719
- Phaseolus vulgaris* L., see Beans ..... 557
- Phenolic compounds, effect of, on tobacco ..... 421
- Phosphate rock fertilizer for rice ..... 390

Phosphorus, applied, response by paddy rice to rates and sources of .....	390	maturity in sorghum and sudangrass .....	348
differences in annual clover responses to .....	439	morphology, effect of soil temperature on .....	567
effect of, on chemical composition and development of peanuts .....	262	morphology of castor .....	527
effect of, on nitrate in sugar beet .....	91	nutrition in soils .....	184
effect of placement of, on the growth of a ladino clover-orchardgrass sward .....	458	part separations and nutrient translocation in maize .....	535
effects of ammonium on the uptake of, by corn .....	214	phenols in flue-cured tobaccos fertilized at different rates .....	415
Phosphorus absorption, effect of absorbed cations on, by plant species .....	215	population, effects of, on castorbean yield .....	527
absorption through pH changes, ammonium effects on, at the soil-root interface .....	524	effects of, on stem yield and growth components of kenaf in Maryland .....	667
analysis, selection of an alfalfa plant part for .....	294	expected yields and returns for corn due to .....	487
availability on two soils determined by several methods .....	336	influence of, on yield of two varieties of corn .....	767
concentrations in wheat leaves in relation to phosphorus toxicity .....	288	population and yield of cotton .....	578
deficiency symptoms in corn .....	496	level for silage corn .....	541
distribution in wheat leaves .....	288	size of hybrid sudangrass .....	494
fertilization, effect of, upon incidence of corn smut .....	496	spacing, yield components and water use by silage corn with .....	541
effects of, on growth, yield, and cooking characteristics of rice .....	239	spacing and corn yield .....	767
fertilizer, residual value of, on a calcareous soil .....	572	species, effect of absorbed cations on phosphorus absorption by .....	214
fixation .....	336	stimulation by naphthenates .....	576
placement and release of N in flooded soil .....	612	stimulation by naphthenic acid .....	644
precipitation, ammonium effects on phosphorus absorption through, at the soil-root interface .....	524	survival after freezing .....	715
recovery by corn .....	828	uptake of chlorinated insecticides from soils .....	369
requirements for tomatoes as influenced by placement .....	203	varieties as indicators of aluminum toxicity in the A <sub>2</sub> horizon of a Norfolk soil .....	679
soil test for .....	336	water potential and freezing .....	715
toxicity, phosphorus concentrations in wheat leaves in relation to .....	288	water relations in large individual plants .....	71
uptake, radioactive, effects of time and height of cut on rooting activity of bluegrass as measured by .....	313	Planting, sunflower date of, and composition at various growth stages .....	665
uptake from soils by corn hybrids selected for high and low phosphorus accumulation .....	103	Planting date effects and interactions on growth and yield of maize .....	760
Phosphorus-ammonia solution, yellow, preparation of and plant response to a .....	832	dates of pasture grasses .....	375
Photochemical smog, effects of, on burley tobacco cultivars .....	825	experimental plots .....	682, 684
Photo-control of flowering in tobacco .....	825	Plants, effective day lengths for the study of photoperiod sensitive reactions in .....	790
Photoperiod and winter and summer soybean growth in southern California .....	118	herbaceous, effect of picloram on growth and protein levels in .....	627
Photoperiod control of flowering in tobacco .....	825	limitation to water flux from soils to .....	693
Photoperiod-sensitive reactions, effective day lengths for the study of, in plants .....	790	lysimeter for large individual .....	71
Photoperiodism .....	790	response of, to naphthenic and cycloalkane-carboxylic acids .....	644
Photosynthesis of individual leaves, results of changing light and temperature regimes on .....	181	tender, factors influencing freezing of super-cooled water in .....	715
Photosynthesis of sugar beet .....	57	Plant-water potential, maximum daily, growth of cotton seedlings in relation to .....	699
Photosynthetic rate of soybean communities as related to CO <sub>2</sub> levels and solar radiation .....	411	Plastic barrier under the nitrate band, effect of, on nitrogen uptake by plants .....	437
sugar beets, effect of wind-breaks and soil water potential on .....	4	Plastic mulch, yield components and water use by silage corn with .....	541
Phytotoxicity of DMSO to potatoes and beans .....	461	Plastic mulch and yields of corn and sorghum .....	785
of water extracts of fruit stems and roots of the tomato plant .....	431	PO <sub>4</sub> -NO <sub>3</sub> interaction in sugar beets .....	91
Picloram, differential responses of sorghum varieties to .....	775	Poa pratensis L., see Bluegrass .....	515
effect of, on growth and protein levels in herbaceous plants .....	627	growth response of .....	25
Pisum sativum L., response of, to gibberellic acid seed treatment .....	291	Po <sup>210</sup> , limited removal of, from soil and fertilizer by leaching .....	663
Pisum sativum L., in pea yield trials .....	61	Pollen germination in bluegrass .....	515
P/K ratio and cold hardiness of bermudagrass .....	659	Polyethylene bags for storing sugarcane .....	831
Placement, phosphorus requirements for tomatoes as influenced by .....	203	Polyphenols in tobacco .....	415
Plant aeration and oxygen diffusion .....	317, 325	Population, effect of, on corn yield response .....	669
aeration, significance of, as predicted for maize roots .....	325	Population tolerance of five maize hybrids .....	255
analysis of corn hybrids selected for high and low phosphorus accumulation .....	103	Pop-up fertilizers, influence of, on soybean stands and yields .....	802
analysis in sugar beet .....	91	Pore space under athletic turf .....	464
composition of corn .....	530	Porosity of excised segments of maize and rice roots .....	322
composition of irrigated cotton .....	299	Post harvest residue management, influence of, on crop yield .....	549
density, effect of, on grain sorghum yield under limited water supply .....	333	Potassium, absorption of, by soybeans .....	585
development of maize .....	535	effect of, on chemical composition and early reproductive development of Virginia type peanuts .....	262
growth characteristics, relationship of hybrid sudangrass plant population to .....	494	effect of, on mineral constituents of pearl millet and sudangrass .....	474
growth of irrigated cotton .....	299	effects of, on ammonium nutrition of tomato .....	818
growth rate of legumes .....	520	Potassium azide as a nitrification inhibitor .....	595
growth regulators .....	434	fertilizers, influence of, on yield and quality of malting barley .....	216
height for spring clipping of wheat .....	641	in flue-cured tobacco .....	415
materials, a simple turbidimetric method of determining total sulfur in .....	805	nitrate addition to substrate for germination .....	638
		Potatoes, arsenic toxicity in .....	588
		influence of dimethyl sulfoxide (DMSO) on nutrient uptake by .....	461
		tractor mounted unit for, harvesting, in experimental plots .....	681
		Precision of different experimental designs and numbers of replication in pea yield trials .....	61
		Prediction models, application of, to barley .....	385

- Preharvest seed germination, influence of tannin content  
on, in sorghum ..... 835
- Preparation of and plant response to a yellow phosphorus-  
ammonia solution ..... 832
- Presidential Address—Improving our agronomic image ..... 1
- Pressure chamber to measure water potential ..... 699
- Prometryne, effect of, on the prussic acid content and  
forage yield of sorghums ..... 101
- Propazine, effect of, on the prussic acid content and forage  
yield of sorghums ..... 101
- Protein, crude, of grazing-type sorghum cultivars as  
affected by harvest frequency ..... 359
- Protein content of legumes ..... 520
- of malting barley ..... 216
- of rice grain, effects of simazine on ..... 269
- of wheatgrass ..... 417
- levels, effect of picloram on, in herbaceous plants ..... 627
- losses from silage ..... 749
- of forage grasses, influence of simazine on ..... 246
- Prussic acid content, effect of triazine herbicides on,  
of sorghums ..... 101
- Pulp crop from kenaf ..... 667
- P<sup>32</sup> uptake, root growth of cotton as measured by ..... 200
- Pyrophosphate, ammonium, effect of, on corn ..... 561
- P-Zn interaction in irrigated corn ..... 561
- Quality of corn plants and component parts when harvested  
for silage at different maturity stages ..... 781
- Quality of different vertical layers of a tall fescue sward ..... 803
- Ra<sup>226</sup>, removal of, by leaching ..... 663
- Radial loss of oxygen in rice roots ..... 329
- Radiation, results of, on photosynthesis of individual leaves ..... 181
- Radicle morphology of corn hybrids ..... 103
- Radioactive substances, a convenient method of placing,  
in soil for studies of root development ..... 303
- Radioactivity in soil nutrients ..... 663
- "Rag doll" test for seed germination ..... 431
- Ragweeds, herbicides for control of, in Korean lespedeza ..... 400
- Rainfall and corn yield ..... 669
- Rainfall distribution and corn yield ..... 781
- Rainfall probabilities and drying of alfalfa hay ..... 538
- Range, effect of nitrogen and shading on, grown under  
under young slash pines ..... 285
- Range plants, perennial, survival and yields of, in the desert ..... 695
- Range seeding in the desert ..... 695
- Ranger alfalfa, herbicides and nitrogen fertilizer for the  
establishment of ..... 259
- Rates of seeding fall-planted spring barley in irrigated areas ..... 729
- Reciprocal Ca, Mg, K relationships in millet ..... 474
- Recovery of plant nutrients by corn, effect of soil pH  
and application rate of dairy cattle manure on ..... 828
- Redox potential under changing soil moisture ..... 689
- Reed canarygrass, digestibility and intake of ..... 719
- Regim-8 ..... 731
- Regression model for corn yield and nutrient concentrations ..... 726
- Remnant seeds in experimental plantings ..... 684
- Replications, number of, for precise estimation of  
optimum plant density and maximum corn yield ..... 357
- Reproductive growth of bean plants, effect of light and  
temperature on stimulation of, by naphthenates ..... 576
- Reproductive growth of various crops ..... 644
- Reseeding of clovers in sod ..... 773
- Residual effects of fertilizers ..... 442
- Residual phosphorus ..... 336
- Residual P, effect of, on clover-grass sward ..... 458
- Residue management and corn yields ..... 655
- Residue management and yield of crops ..... 549
- Resistance of grain sorghum hybrids to bird damage ..... 211
- Respiration of sugar beet ..... 57
- rate and oxygen diffusion in soil-plant system ..... 325, 329
- rate of excised segments of maize and rice roots ..... 322
- rates predicted for maize roots ..... 325
- rates predicted for rice roots ..... 329
- Response of cotton and peanuts to subsoil acidity ..... 9
- Restricted cross-bulk breeding of soybeans ..... 758
- Rhizobium japonicum* ..... 621
- Rhizobium japonicum* serogroups, distribution of, in  
soybean nodules as affected by planting dates ..... 12
- Rhizotron, measurement of soil-grown roots in a ..... 807
- Rice, a nonselective weedkiller as a substitute for tillage  
in production of ..... 189
- effects of nitrogen and phosphorus fertilization on  
on growth, yield and cooking characteristics of ..... 239
- influence of nitrogen on ..... 120
- lowland, response of, to varying levels of soil, water  
and fertility management ..... 197
- response of, to rates and sources of applied phosphorus ..... 390
- transplanted, effect of time of harvest and nitrogen  
level on yield and grain breakage in ..... 468
- Rice grain, effect of simazine on protein content of ..... 269
- plant, influence of submerged soil temperature regimes  
on growth of ..... 281
- roots, oxygen concentration profiles, respiration rates  
and radial oxygen losses predicted for ..... 329
- respiration rate, permeability, and porosity of  
excised segments of ..... 322
- culm elongation near midseason, influence of nitrogen on ..... 120
- varieties, differential response of, to timing of mid-  
season nitrogen applications ..... 608
- Ricinus communis* L., see Castor
- Ricinus communis* L., effect of plant population on yield of ..... 527
- "Ripening" of sugar beet roots ..... 57
- Roadcut improvement by crownvetch ..... 485
- Roadside seeding, mulches for ..... 810
- Roadside vegetation, performance of, on backslopes ..... 397
- Root activity in a soil profile ..... 69
- CEC and P absorption ..... 214
- cell division of *Vicia faba*, interaction of gas composition  
and salinity upon ..... 18
- competition in soybeans ..... 424
- development, a convenient method of placing  
radioactive substances in soil for studies of ..... 303
- development and establishment of perennial forages ..... 97
- distribution influenced by composition of soil air ..... 815
- distribution studied in a rhizotron ..... 807
- elongation rates of cotton as measured by P<sup>32</sup> uptake ..... 200
- growth of corn ..... 346
- of cotton and peanuts ..... 9
- of cotton as measured by P<sup>32</sup> uptake ..... 200
- of rice plant, influence of submerged soil temperature  
regimes on ..... 281
- of wheat ..... 505
- intensity measured in a rhizotron ..... 807
- knot in flue-cured tobacco ..... 87
- knot larvae, in-the-furrow application of, in field plots ..... 503
- length of soybean varieties ..... 581
- lengths, a comparison of three methods for estimating ..... 451
- permeability, effect of, on oxygen diffusion ..... 322
- respiration, effects of, on water uptake by tobacco roots ..... 224
- respiration and oxygen diffusion ..... 317, et seq.
- response of Merion Kentucky bluegrass sods to various  
nitrogen applications near the time of transplanting ..... 623
- sampling procedures ..... 581
- surface area of soybean varieties ..... 581
- system of cotton as measured by P<sup>32</sup> uptake ..... 200
- weight among soybean varieties ..... 581
- weights of perennial forages ..... 97
- Rooting ability of Merion Kentucky bluegrass sod grown  
on mineral and muck soil ..... 517
- activity, effects of time and height of cut on, ..... 313
- depth from a soil profile of *Bromus inermis* ..... 69
- system of soybeans. I. Differences in root morphology  
among varieties ..... 581
- II. Physiological effectiveness as nutrient  
absorption surfaces ..... 585
- Root-observation containers ..... 623
- Roots, alfalfa, growth of ..... 764
- Roots, depth and lateral extent of ..... 313
- Roots from a soil profile of *Bromus inermis* ..... 69
- Rose clover response to P and S ..... 439
- Rotation and yield of crops ..... 549
- Row spacing, effect of, on establishment and yield of  
crested wheatgrass ..... 417
- effect of, on corn yield ..... 795
- effects of, on evapotranspiration and yields of corn  
in a semiarid environment ..... 795
- influence of, on dryland flax yield, quality, and  
water use ..... 635
- Row spacings for hybrid sudangrass ..... 494
- Row width, influence of, on yield of two varieties of corn ..... 767
- Row width and water use by silage corn ..... 541



Rubidium, effects of ammonium on the uptake of, by corn	753	Soil, calcareous, residual value of phosphorus fertilizer on ..	572
Rye, accumulation and loss of nitrogen during growth		mineral and muck, rooting ability of merion Kentucky	517
and maturation of .....	311	bluegrass sod grown on .....	517
uptake of nitrogen by .....	437	persistence of crop seeds in .....	272
Ryegrass, influence of simazine on yield of .....	246	Soil acidity, cation-anion balance in crops as a factor	
Ryegrass, uptake and metabolism of D-amino acids by .....	184	in determining the effect of nitrogen fertilizers on .....	106
Salinity, interaction of, upon root cell division of <i>Vicia faba</i>	18	acidity and Al toxicity .....	702
Salinity-macronutrient relationships in barley and corn .....	43	aeration, characterizing, under changing soil moisture	
Salinity-micronutrient relations in barley and corn .....	46	conditions for bean growth .....	689
Salt effect on pH .....	106	aeration and oxygen diffusion .....	317
Salt injury in wheat leaves .....	288	aeration for tomato plants during soil flooding .....	220
Salt tolerance of <i>Atriplex halimus</i> L., Na and K interactions		air, variation in taproot elongation rate as influenced	
in increasing the .....	478, 481	by comparison of the .....	815
Salt tolerance of desert saltbush .....	351	analysis of trifluralin: methodology and factors	
Saltbush, desert, absorption of Na, Cl, and B by, in		affecting quantitation .....	778
relation to composition of nutrient solution culture .....	351	and fertilizer, limited removal of $Po^{210}$ and $Pb^{210}$	
Sample preparation .....	429	from, by leaching .....	663
Sand culture for cotton at different stages of growth .....	29	contamination by arsenic .....	588
Sand culture system, semiautomatic, for greenhouse plant		core samples under crownvetch .....	485
nutrition research .....	304	factors, influence of, on the yield response by corn to	
Sands, evaluating, for athletic turf .....	464	N, P, and K fertilizer .....	736
Sandy soil, water storage and drainage under a row crop on a	48	fertility, response of six diverse genetic lines of soybeans	
Seasonal effects on photoperiod sensitive plants .....	790	to different levels of .....	236
Seed cleaner, with dust collector .....	307	for studies of root development, convenient method	
coverage and germination of clover .....	743	of placing radioactive substances in .....	303
dormancy in soil .....	272	gas composition, effect of, on growth of <i>Nicotiana</i>	
dormancy in sorghum .....	835	<i>tabacum</i> L. ....	80
orientation, effect of, on emergence and growth of corn	592	grinder, jaw-action .....	429
rate, effects of, on establishment and yield of		incorporation, influence of, on herbicide performance	
crested wheatgrass .....	417	in sorghum .....	252
size, head size of sunflower as an indicator of .....	112	management, response of lowland rice to varying levels of	197
treatment of soybeans in Iowa .....	195	manipulation for lowland rice .....	197
viability in soil .....	272	moisture, effect of, on N release from urea .....	612
yield, effect of morphological characteristics upon,		moisture stress, effect of, on grain legumes .....	449
in soybeans .....	64	moisture stress, some effects of, on the growth of wheat ..	27
head size of sunflower as an indicator of .....	112	organic matter .....	373
response of, to different levels of soil fertility .....	236	pH, effect of, on N release from urea .....	612
yield of <i>Pisum sativum</i> L. ....	291	pH, effect of, on yield and recovery of twelve plant	
Seedbed configuration and yield of sorghum .....	785	nutrients by corn .....	828
configuration in the western Corn Belt .....	229	pH and growth of cotton and peanuts .....	9
preparation, effect of, on corn production .....	403	pH and nitrification .....	595
Seeding, dates of, influence of, on yield and quality of		preparation, crownvetch seedling growth on an acid	
malting barley .....	216	soil as influenced by .....	485
Seeding and yield of castor .....	527	salinity, influence of, on production of dry matter	
Seeding rates for hybrid sudangrass .....	494	and distribution of nutrients in barley and corn .....	43
Seeding emergence of <i>Pisum sativum</i> L. ....	291	temperature, effect of, on cotton seedling root elongation	243
growth, effect of seed orientation on .....	592	effect of, on rate of barley development and nutrition ..	567
growth, influence of temperature on, of three alfalfa		and nitrification .....	595
cultivars .....	764	cycle, influence of, on growth of rice plant .....	281
growth of crownvetch .....	552	influences on dryland winter wheat .....	797
Seedstalk height and yield of wheatgrass .....	417	in relation to nitrification .....	206
Selection index, leaf analysis as a, for soybean seed		of grain sorghum and corn .....	785
oil and protein .....	631	regimes, influence of, on growth, of rice plant .....	281
Selective absorption of nutrients by desert saltbush .....	351	with four tillage methods in the Western corn belt .....	229
Senescence, effect of, on fatty acid composition of tobacco ..	512	testing for N requirements .....	381
Severity of defoliation of crownvetch stems by grazing sheep	626	texture and germination of clovers .....	743
Shade, effect of, on growth of crownvetch .....	552	water influences on dryland winter wheat .....	797
Shading, effect of, on yield and quality of grasses grown		water losses, summer fallow, on intermountain dryland	
under young slash pines .....	285	and its effect on cropping winter wheat .....	722
Shallow rooting plants and aluminum toxicity .....	679	water potential, effect of, on stomatal diffusion resistance	
Shear strength of sod layers .....	517	and photosynthetic rate of sugar beets .....	4
Sheep, evaluation of canarygrass by use of .....	719	Soil-grown roots, measurement of, in a rhizotron .....	
Silage, influence of drying methods and temperatures on		Soil-plant system, oxygen diffusion in .....	317, 322, 325, 329
<i>in vitro</i> dry matter digestibility of .....	543	Soilless culture for greenhouse plant nutrition research .....	394
Silage fermentation, fate of carbon-14-labelled cell walls in ..	532	Soils, amended, effects of some triazines on corn and	
Simazine, effect of, on protein content of rice grain .....	269	bean plants grown on .....	373
Simazine, influence of, on crude protein and cellulose		D-amino acids in. I. Uptake and metabolism by	
content and yield of forage grasses .....	246	seedling maize and ryegrass .....	184
Simulation model to predict cotton emergence .....	741	effect of temperature and ultraviolet radiation	
Single-seed descent breeding method .....	758	on the persistence of methyl parathion and DDT in .....	509
Skimming turbulent flow in soybean canopy .....	615	extraction and cleanup of $^{14}C$ -chlorinated insecticides	
Slope exposure, performance of crownvetch on roadside		from cotton grown in treated .....	365
backslopes as affected by .....	397	limitation to water flux from, to plants .....	693
Slope stabilization with crownvetch and grasses .....	397	natural, effects of some triazines on corn and bean	
Slope stabilization with mulches .....	810	plants grown on .....	373
Slow-release N fertilizer .....	612	plant uptake of chlorinated insecticides from .....	369
Small grains, effects of soil moisture stress on growth of .....	27	phosphorus uptake from, by corn hybrids selected for	
Small grains in irrigated areas, seeding .....	729	high and low phosphorus accumulation .....	103
		sodded and cultivated, soil temperature and nitrification in	206
		<i>Solanum tuberosum</i> , see Potato .....	681
		Solar radiation, photosynthetic rate of soybean communi-	
		ties as related to .....	411

- Soluble P, adventitious roots, tillers, and grain yields of spring wheat as influenced by ..... 32
- Sorghum, calcium and strontium relationship in ..... 297
- forage, nutritional characteristics of, after frost ..... 348
- grain, effect of mulches and bed configuration. Soil temperature and growth and yield responses of ..... 785
- grain, influence of dicamba on the growth and development of ..... 407
- influence of soil incorporation on herbicide performance in ..... 252
- influence of tannin content on preharvest seed germination in ..... 835
- resistance of, to bird damage ..... 211
- effect of triazine herbicides on prussic acid content and forage yield of ..... 101
- resistance to greenbug in ..... 574
- Sorghum cultivars, grazing-type, digestible dry matter, crude protein and dry matter yields of ..... 359
- cultivars, HCN potential of ..... 394
- fodder, influence of drying methods and temperatures on in vitro dry matter digestibility of ..... 543
- grain, tannin content and digestibility of, as influenced by bagging ..... 633
- × sudangrass hybrids, relationship of chemical composition and morphological characteristics to palatability in ..... 762
- × sudangrass hybrids, yields of ..... 359
- × sudangrass hybrids as pasture for yearling beef cattle varieties, responses of, to picloram ..... 375
- yield, grain, effect of plant density and growth duration on, under limited water supply ..... 333
- Sources of nitrogen, growth response of Merion Kentucky bluegrass to ..... 25
- Soybean canopy, SYMAP and net radiation in a ..... 830
- canopy, wind structure above and within a ..... 615
- communities, photosynthetic rate of, as related to CO<sub>2</sub> level and solar radiation ..... 411
- growth in southern California ..... 118
- nuclei, distribution of *Rhizobium japonicum* serogroups in ..... 12
- pollen for artificial crossing, storage of ..... 121
- plant response to temporary field windbreaks ..... 424
- root nodule bacteria, serological distribution of, in soils of southeastern USA ..... 621
- seed oil, leaf analysis as a selection index for ..... 631
- seedlings, response of nonnodulated, to sulfur nutrition ..... 278
- seedlings, toxicity of 2-chloro-6- (trichloromethyl) pyridine in ..... 550
- stands, influence of "pop up" fertilizers on ..... 802
- yield response to windbreak ..... 424
- yield-weather technology relationships in the central U. S. ..... 232
- Soybeans, effect of ethrel on growth and yield of ..... 434
- effects of morphological characteristics upon seed yield in foliar absorption and distribution of 2, 3, 5, Triiodobenzoic acid (TIBA) in ..... 731
- mechanical node harvester for ..... 758
- molybdenum response of ..... 195
- response of six diverse genetic lines of, to different levels of soil fertility ..... 236
- rooting systems of. I. Differences in root morphology among varieties ..... 581
- rooting systems of. II. Physiological effectiveness as nutrient absorption surfaces ..... 585
- weather and technology in the production of, in the central United States ..... 232
- Spartans ..... 708
- Spatially disposed data ..... 830
- Spikelet sterility of rice plant ..... 281
- Spindle formation of cotton and corn ..... 306
- Stalk diameter in sugarcane, factors affecting ..... 250
- Stalk strength in sugarcane, factors affecting ..... 250
- Stand density and yield of castor ..... 527
- Stand survival of wheatgrass ..... 417
- Statistics-computer interface in agronomic research ..... 599
- Statistical methods for predicting corn yield ..... 357
- Statistical methods in agronomic research ..... 599
- Steady state model for oxygen differences in soil-plant system ..... 317
- Sterility of rice grain, effect of simazine on ..... 269
- Stem yield of kenaf in Maryland, effects of plant population and harvest on ..... 667
- Stems, carbohydrates in alfalfa ..... 764
- Stems, dry matter accumulation and depletion in, of maturing maize ..... 535
- Stomatal diffusion resistance of sugar beets, effect of windbreaks and soil water potential on ..... 4
- impressions of sugar beet leaves ..... 20
- resistance of sugar beet leaves, influence of leaf age, illumination, and surface differences on ..... 20
- Straw production of semidwarf winter wheat ..... 641
- Strength, effect of, on cotton seedling root elongation ..... 243
- Strip-mine spoils, extractable Al in ..... 117
- Strontium in various commercially important plants ..... 297
- Structural tissue, carbohydrate in alfalfa ..... 764
- Subclover response to P and S ..... 439
- Subcoat color of sorghum seed, effect of ..... 633
- Submersion tolerance of four grasses, influence of water temperature on ..... 257
- Subterranean and aerial seeds, a vetch producing both ..... 55
- Succulence of *Atriplex kalimus* ..... 478
- Sucrose in sugar beets ..... 57
- Sudangrass, effect of potassium on the mineral constituents of ..... 474
- nutritional characteristics of, after frost ..... 328
- protein and yield of ..... 359
- relationship of chemical composition and morphological characteristics to palatability in ..... 762
- Sudangrass plant populations, hybrid, relationship of, to plant growth characteristics ..... 492
- Sugar beet, effect of phosphorus on nitrate in ..... 91
- growth, composition, and metabolic responses of, to application of maleic hydrazide ..... 57
- leaves, influence of leaf age, illumination, and surface differences on stomatal resistance of ..... 20
- roots, a growth sensor for ..... 837
- Sugar beets, stomatal diffusion resistance and photosynthetic rate of ..... 4
- Sugarcane, factors affecting stalk strength and flexibility in ..... 250
- Sugarcane cuttings, germination of stored ..... 831
- Sugars in corn, effects of drought on ..... 605
- Sugars of cotton leaves, adaptation of gas-liquid chromatography to analysis of ..... 36
- Sulphydryl groups of cotton and corn ..... 306
- Sulfur, a simple turbidimetric method of determining total in plant materials ..... 805
- differences in annual clover responses to ..... 439
- effects of ammonium on the uptake of, by corn ..... 753
- effect of, in preventing the occurrence of chlorosis in peas ..... 708
- effect of, on chemical composition and development of peanuts ..... 262
- recovery of by corn ..... 828
- Sulfur dioxide, effects of, on burley tobacco cultivars, ..... 265
- Sulfur nutrition, response of soybean seedlings to ..... 277
- Sulfuric acid, effect of, on grain sorghum yields ..... 555
- Summer fallow for dryland winter wheat in the semi-arid Great Plains ..... 15
- Sunflower, head size of, as an indicator of plot yields ..... 112
- Sunflower date of planting and chemical composition at various growth stages ..... 665
- Superphosphate for rice fertilization ..... 390
- Sward, cool-seasonal dry matter distribution and annual yields of, as altered by frequency and rate of nitrogen application ..... 453
- Sward, tall fescue, yield and quality of different vertical layers of a ..... 803
- Swarr-Hibshman tobacco ..... 377, 433
- Sweetclover, yield and composition of ..... 520
- SYMAP in a soybean canopy ..... 830
- Tall fescue, influence of simazine on yield of ..... 246
- Tannic acid in grain sorghum hybrids ..... 211
- Tannin content, influence of, on preharvest seed germination in sorghum ..... 835
- digestibility of sorghum grain as influenced by bagging ..... 633
- in sorghum and bird damage ..... 677
- Taproot elongation rate, variation in, as influenced by composition of the soil air ..... 815
- Taproot growth of cotton as measured by p<sup>32</sup> uptake ..... 200
- Technology in the production of soybeans in the central United States ..... 232

Temperature, effect of, on the persistence of Methyl parathion and DDT in soils .....	509	Trifluralin, effect of cysteine on the action of, on lateral roots of cotton and corn .....	306
effect of, on stimulation of vegetative and reproductive growth of bean plants by naphthenates .....	576	Trifluralin, soil analysis of: methodology and factors affecting quantitation .....	778
influence of, on growth and root porosity of wheat .....	505	<i>Trifolium</i> , placement of P and lime for .....	458
influence of, on seedling growth and carbohydrate composition of three alfalfa cultivars .....	764	<i>Trifolium incarnatum</i> , management effects on forage production and digestibility of .....	115
influence of, on the yield and chemical composition of five forage legume species .....	520	<i>Trifolium subterraneum</i> L., see Clover, subterranean .....	
viability of Kentucky bluegrass pollen as influenced by .....	515	<i>Trifolium subterraneum</i> L., germination of cultivars of 638, 743 .....	743
Temperature and winter and summer soybean growth .....	118	<i>Trifolium vesiculosum</i> Savi, see Clover, arrowleaf .....	115
effect on crownvetch cotyledon size .....	711	Trimethylsilyl derivatives of certain sugars of cotton leaves .....	36
effect on flowering in tobacco .....	825	<i>Triticum aestivum</i> L. Thell, see wheat .....	27
effect on germination of sugarcane .....	831	Tropism of corn seedlings .....	592
effects on the apparent photosynthesis of individual leaves .....	181	Turbidimetric method of determining total sulfur in plant materials .....	805
programmers, cam-actuated, a constant temperature setting device for .....	113	Turfgrass rooting and phosphorus uptake .....	313
Temperatures, influence of, on <i>in vitro</i> dry matter digestibility of corn and sorghum fodder and silage .....	543	2-chloro-6-(trichloromethyl) pyridine as a nitrification inhibitor for anhydrous ammonia applied in different seasons .....	821
Temporary field windbreaks, soybean response to .....	424	2-chloro-6-(trichloromethyl) pyridine toxicity in soybean seedlings .....	550
Thermo-control of flowering in tobacco .....	825	2,4-D for control of ragweeds .....	400
Thermocouple psychrometer, four-terminal peltier type, for measuring water potential in nonisothermal systems .....	705	2,4-DB use of in establishment of alfalfa .....	259
Tillage .....	722		
Tillage, a nonselective weedkiller as a substitute for in production of rice .....	189	Ultraviolet radiation, effect of, on the persistence of methyl parathion and DDT in soils .....	509
Tillage methods for corn-sod systems in the southern Piedmont .....	646	Uptake and distribution of nutrients, influence of soil salinity on, in barley and corn .....	43
Tiller development, influence of, on growth of rice plant .....	281	Urea, sulfur coated, release of nitrogen from, in flooded soil .....	612
Tillers .....	363	Use of an anhydrous NH <sub>3</sub> applicator for field research .....	833
Till-planting in the western Corn Belt .....	229	<i>Ustilago maydis</i> (DC.) Cda., see smut, corn .....	496
Time and rate of N applications, effect of, on yield, nutritive value index, crude protein and nitrate content of bromegrass .....	442	U.V.-degradation of trifluralin .....	778
of cut, effects of, on rooting activity of Merion Kentucky bluegrass .....	313		
of harvest, effect of, on yield and grain breakage in transplanted rice .....	468	Variability among cultivars of subterranean clover .....	743
Timothy, influence of simazine on yield of .....	246	Variety $\times$ storage interaction .....	831
Tobacco, absorption of Pb <sup>20</sup> by .....	663	Vegetable crops grown on Plainfield sand, arsenic residue toxicity to .....	588
associations among disease resistance, agronomic characteristics, and chemical constituents in flue-cured .....	87	Vegetation removal, effect of, on wheat yield .....	641
burley, influence of sublethal, foliar applications, of 2,4-D on yield and composition of .....	421	Vegetative components. Water deficit effects on corn .....	649
effect of growth, senescence, and curing on fatty acid composition of .....	512	Vegetative growth of bean plants, effect of light and temperature on stimulation of, by naphthenates .....	576
photo- and thermo-control of flowering in .....	825	Vernal alfalfa, herbicides and nitrogen fertilizer for the establishment of, .....	259
Pennsylvania broadleaf, coefficients for computing leaf area in .....	433	Vertical distribution in Coastal bermudagrass sod .....	39
yield and leaf area of, as affected by variety and plant population .....	377	Vetch producing both subterranean and aerial seeds .....	55
Tobacco cultivars, burley, effects of air pollutants on, .....	265	<i>Vicia faba</i> L., interaction of gas composition and salinity upon root cell division of .....	18
mosaic in flue cured tobacco .....	87	<i>Vicia sativa</i> subspecies <i>amphicarpa</i> , subterranean and aerial seeds .....	55
roots, effects of anaerobic conditions on water uptake by .....	224	Viets effect of adsorbed cations on phosphorus absorption .....	214
Tobaccos, flue cured, fertilized at different rates, plant phenols in .....	415	Volatile acid loss from silage .....	749
Tomato .....	807	Voluntary intake of reed canarygrass and tall fescue pasture .....	75
Tomato, effects of potassium on ammonium nutrition of .....	818		
ethanol concentration in, during soil flooding .....	220	Water, consumptive use of, by alfalfa in western Nebraska .....	507
phosphorus requirements for, as influenced by placement .....	203	Water balance from a snap bean crop .....	66
Tomato nutrition .....	203	culture of corn .....	432
plant, phytotoxicity of water extracts of roots of, and a technique for its determination .....	431	deficit effects on corn. I. Vegetative components .....	649
plants, ethanol concentration in, during soil flooding .....	220	deficit effects on corn. II. Grain components .....	652
roots affected by root knot larvae .....	503	extraction by flax .....	635
Top/root ratio in barley .....	567	flux, limitation to, from soils to plants .....	693
Total nonstructural carbohydrates .....	764	harvesting in desert range .....	445
Toxin assay in tomato plant .....	431	management response of lowland rice to varying levels of pollution by fertilizer .....	197
Translocation of TIBA in soybeans .....	731	potential and water flux from soils to plants .....	693
Translocation of nutrients, effect of temperature on .....	567	potential gradient and growth of cotton seedlings .....	699
Transpiration, automated precision balance system for measuring, from individual plants .....	71	potential in nonisothermal systems, four terminal peltier type thermocouple psychrometer for measuring .....	705
Transpiration from a snap bean crop .....	66	spreading in desert farming .....	695
Transpiration in soybeans .....	411	storage under a row crop on a sandy soil .....	48
Treflan, quantitation of .....	778	stress effect on growth of sorghum .....	333
Triazine herbicides, effect of, on prussic acid content and forage yield of sorghums .....	101	temperature, influence of, on submersion tolerance of four grasses .....	257
Triazines, effects of, on corn and bean plants grown on natural and amended soils .....	373	uptake by tobacco roots .....	224
Trichomes .....	351	use by grain sorghum .....	333
		by silage corn with irrigation, plastic mulch, nitrogen fertilization, and plant spacing .....	541
		efficiency of dryland winter wheat .....	15
		efficiency of silage corn .....	541
		efficiency of soybeans .....	424
		with four tillage methods in the western Corn Belt .....	229



- Weather, effect of, on corn yield response ..... 669
- Weather fleck, effects of, on burley tobacco cultivars ..... 265
- Weather in the production of soybeans in the central United States ..... 232
- Weather resistance of sorghum varieties ..... 633
- Weed control ..... 770
- Weedicide as substitute for tillage in production of rice .... 189
- Weeds, influence of, on dryland flax yield, quality and water use ..... 635
- Wheat, dryland winter, soil water and soil temperature influences on ..... 797
- dryland winter, summer fallow for ..... 15
- influence of temperature, light intensity and aeration on growth and root porosity of ..... 505
- semidwarf winter, response to early spring clipping and grazing ..... 641
- some effects of soil moisture stress on the growth of ..... 27
- spring, adventitious roots, tillers, and grain yields of, ..... 32
- winter, summer fallow soil water losses on intermountain dryland and its effect on ..... 722
- Wheat leaves in relation to phosphorus toxicity, phosphorus concentrations in ..... 288
- seed protein: chemical influence on and relationship to subsequent growth and yield in Michigan and Mexico ..... 746
- Wheatgrass, crested, effects of seeding rate and row spacing on establishment and yield of ..... 417
- Wheatgrasses, intermediate, nitrogen nutrition and growth relations of ..... 353
- Wheatgrasses, tall, nitrogen and growth relations of ..... 353
- Wind structure above and within a soybean canopy ..... 615
- Windbreaks, effects of, on stomatal diffusion resistance and photosynthetic rate of sugar beets ..... 4
- Winter soybeans growth in southern California ..... 118
- Winterhardy vetch with subterranean and aerial seeds ..... 55
- Yield, effect of time of harvest and nitrogen level on, in transplanted rice ..... 468
- effect of time and rate of N applications on brome grass .... 442
- effects of ammonium polyphosphate on, of irrigated corn ..... 561
- influence of temperature on, of five forage legume species ..... 520
- Yield components by silage corn with irrigation, plastic mulch, nitrogen fertilization, and plant spacing ..... 541
- components of rice, effects of nitrogen and phosphorus fertilization on ..... 239
- of corn, effect of soil pH and application rate of dairy cattle manure on ..... 828
- of corn plants and component parts when harvested for silage at different maturity stages ..... 781
- of crested wheatgrass, effects of seeding rate and row spacing on ..... 417
- of different vertical layers of a tall fescue sward ..... 803
- of forage grasses, influence of simazine on ..... 246
- of grasses grown under young slash pines, effect of nitrogen and shading on ..... 285
- of rice, influence of submerged soil temperature regimes on ..... 281
- of type 41, Pennsylvania broadleaf tobacco as affected by variety and plant population ..... 377
- prediction equation ..... 736
- response by corn, influence of soil, management and climatic factors on the, to N, P, and K fertilizer ..... 736
- yield response of grain sorghum and corn to mulching .... 785
- response of upland cotton to several spacing arrangements ..... 578
- Yield variances due to N and plant population ..... 487
- Yields, annual, of a cool-season sward as altered by frequency and rate of nitrogen application ..... 453
- Yields, effects of row spacing on, of corn in a semi-arid environment ..... 795
- Yields and establishment of perennial forages ..... 93
- Yuchi arrowleaf clover, management effects on forage production and digestibility of ..... 115
- Zea mays* L., see Corn and Maize ..... 46
- Zinc, absorption of, by soybeans ..... 585
- Zn recovery by corn ..... 828
- Zn toxicity to navy beans ..... 557